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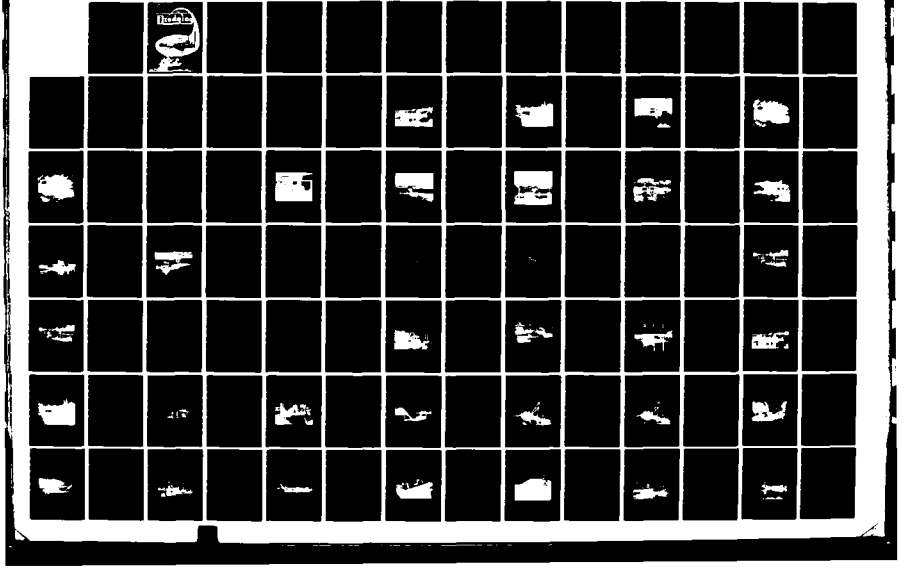

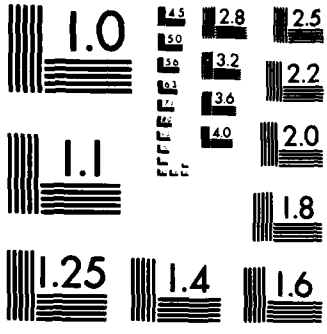

Dredging

Technical Report
March 1983

Survey of Portable Hydraulic Dredges

Compiled by the Hydraulic Laboratory

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This report summarizes the results of a comprehensive survey conducted to identify and characterize portable dredges available in the United States. The range and variations available are presented in two forms: (a) a summary chart of all dredges, and (b) individual descriptions including detailed information and a photograph or drawing. Also included are addresses of all companies surveyed and a tabulation of which companies responded. Report is furnished in loose-leaf form with binder and is updated with periodic additions.

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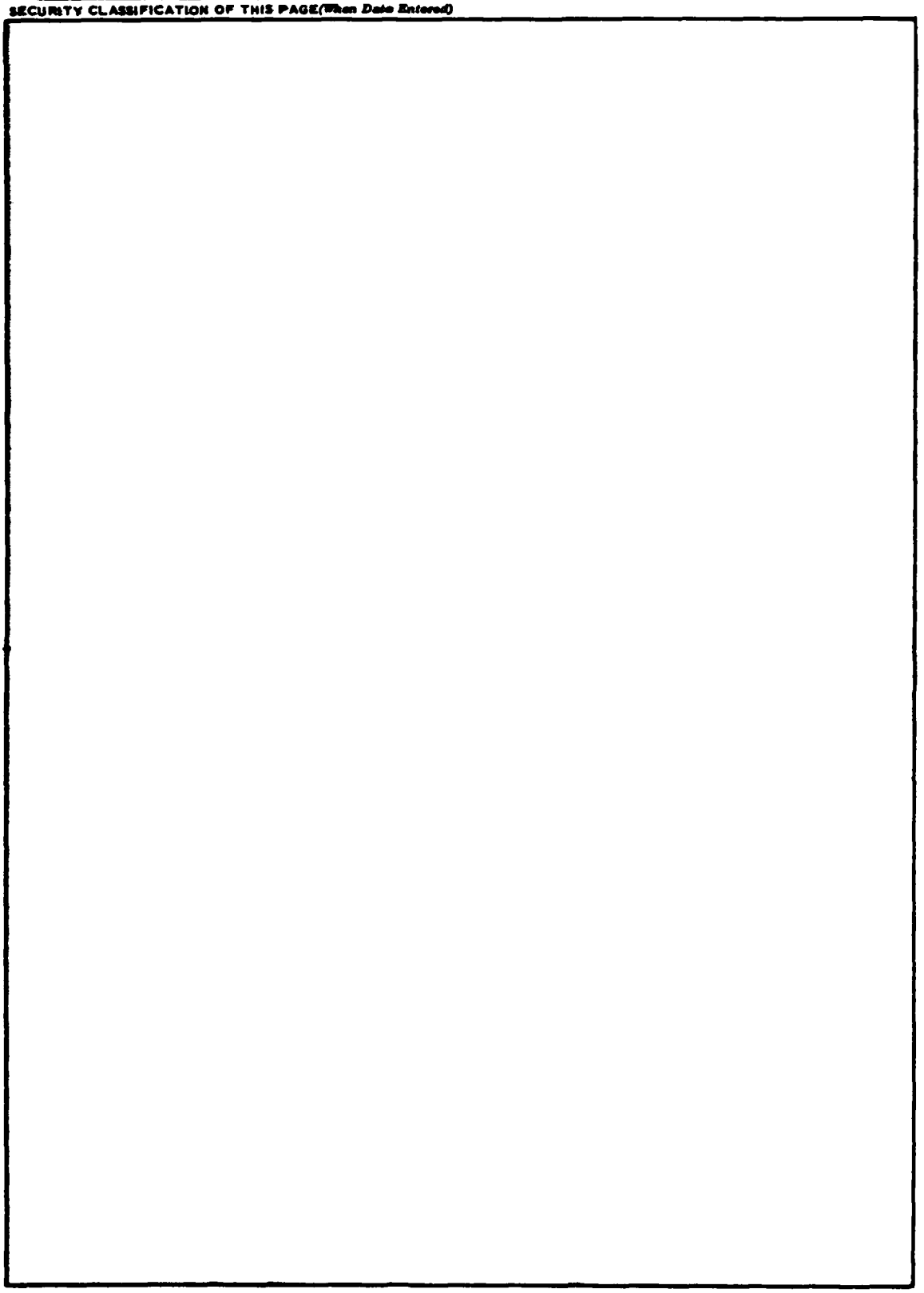

PREFACE

This report is the result of work performed under the Improvement of Operations and Maintenance Techniques (IOMT) research program. This program is sponsored by the Office, Chief of Engineers, U. S. Army, and is being conducted at the U. S. Army Engineer Waterways Experiment Station (WES). The IOMT work unit under which this report was produced is entitled "New Dredging Concepts."

The report was prepared in the Hydraulics Laboratory of WES under the general supervision of Messrs. H. B. Simmons, Chief of the Hydraulics Laboratory, F. A. Herrmann, Jr., Assistant Chief of the Hydraulics Laboratory, R. A. Sager, Chief of the Estuaries Division, E. C. McNair, Jr., Chief of the Sedimentation Branch, and T. W. Richardson, Project Engineer. This report was prepared by Mr. G. R. Clark.

Commander and Director of WES during the preparation and publication of this report was COL Tilford C. Creel, CE. Technical Director was Mr. F. R. Brown.

CONTENTS

CONVERSION FACTORS, U. S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

U. S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
cubic yards per hour	0.7645549	cubic metres per hour
feet	0.3048	metres
gallons (U. S. liquid)	3.785412	litres
gallons per minute	0.0630902	litres per second
horsepower	745.6999	watts
inches	25.4	millimetres
pounds (mass)	0.4535924	kilograms
tons (2,000 lb, mass)	907.1847	kilograms

SURVEY OF PORTABLE HYDRAULIC DREDGES

PART I: INTRODUCTION

Background

1. Dredging has often been viewed as a primitive art with primitive equipment in a highly technological society. It also has been stated that dredging technology has lagged far behind other disciplines concerning utilization of new techniques and advanced equipment. This is no longer true. Recent advances in dredging technology have transformed conventional dredges into highly specialized excavation equipment. One major advancement in this field has been in the design of portable dredges.

2. In the past, mobilizing and demobilizing a conventional dredge often required a large portion of total job time. Now, with smaller hulls, modular construction, and even amphibious capabilities, many dredges can be transported overland from one job to the next with minimal effort. Wasted operating time is kept to a minimum, which maximizes dredge utilization and profit. A number of dredge manufacturers have recognized this advantage and now market full lines of portable dredges.

Purpose

3. This report presents the results of a comprehensive survey of portable dredges available in the United States and gives a summary of varying capabilities of each dredge. The purpose is to present a survey of industry capabilities in the field of portable dredges and to give the range and variations available in a concise, easy to compare form. No attempt is made to recommend one dredge over another, only to compare features generally found on most dredges. This report should aid project engineers in choosing suitable portable dredges to fit design requirements.

Portable Dredge Definition

4. Before a comparison of portable dredge capabilities can be undertaken, the term "portable dredge" must be clearly defined. This is not a simple task. Some dredges are unmistakably portable, while other dredges are obviously not. The problem lies in choosing a set of criteria for the term "portable."

5. In order to categorize dredges, a portable dredge is defined in the following way: "A dredge can be considered portable if it can be moved easily from one jobsite to the next over existing roadways. If a dredge must be dismantled for transport, it should be constructed for that purpose so dismantling and reassembling can be done easily and quickly." Defining exactly what is "easily and quickly" is also subject to interpretation. It will be shown that dredges built in modular sections can be dismantled much easier and quicker than other types.

6. This definition generally agrees with one used by Bates*; however, he excludes dredges which either weigh more than 100 tons** or have more than 1,000 horsepower installed. The author argues that it is misleading to set arbitrary size limits in defining portable dredges. Advanced engineering principles and practices are used in the design of large portable dredges in an effort to make mobilization and demobilization less time-consuming; these dredges should not be left out. Obviously, small 6-in. dredges are more easily portable than 20-in. dredges if for no other reason than size differences. Portability is a relative term and should be viewed as such; therefore no size limits were included in this report.

7. An important characteristic is means of mobility. If a dredge must be transported via water, either under its own power or on a barge, it is mobile but not considered portable. If a dredge must be dismantled

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* Anthony D. Bates. 1978 (Mar). "Portable Cutter Suction Dredges... Some of the Problems," Dredging and Port Construction, Series II, Vol. 5, No. 5, pp. 12-17.

** A table of factors for converting U. S. customary units of measurement to metric (SI) units is presented on page 3.

prior to travel but was not constructed for frequent takedowns, loss of operating time becomes an important consideration. In this case, the dredge will eventually be transportable but is not viewed as portable. With these points in mind, it is clear that a dredge that can be transported intact over existing roads is portable. If a dredge is built in modular fashion for easy dismantling and transporting, it also is considered portable.

8. The concept of modular design has greatly increased the potential for large dredges to be portable. When compared with non-modular dredges, little effort or time is required to dismantle and reassemble a large dredge that has been designed and built for that purpose. Specially designed ladders and pontoons can be removed and attached with minimum time and effort, meaning that the large dredge can be broken down easily into road-transportable components. No longer must "portable" apply only to small capacity dredges.

Method of Investigation

9. A survey of literature and industry was conducted for manufacturers of portable dredges. An effort was made to contact all portable dredge manufacturers in the United States that have advertised in current dredging literature. Thirty companies were chosen, based on their advertisements, and requests for additional information were sent to each. Information received from manufacturers was reviewed and the general characteristics of all standard or series dredges are summarized in Appendix A. Complete addresses of companies contacted and a tabulation of which companies responded can be found in Appendix B. The report will be updated periodically and manufacturers will be contacted for information on existing model changes or details on new models.

10. Most manufacturers' literature presents only a partial review of dredges, so a second request was made for detailed or missing information. Also requested were pictures or drawings of each dredge to be included in this report. Responses to these requests form the basis for both dredge-by-dredge descriptions and a summary chart for all dredges (Table 1).

11. Some companies surveyed replied that they did not manufacture portable dredges and therefore were not contacted further. Also, companies that only distribute another manufacturer's dredge were excluded from further review. Other companies manufacture only custom dredges and were therefore excluded in summaries since each dredge is completely different and cannot be characterized in general terms. Only companies that manufacture a standard dredge or dredge series are included in this report. While every dredge is actually a custom dredge in one degree or another, for purposes of identification and comparison of capabilities only standard line dredges are reviewed. In no way does this imply that standard models or series dredges are better than a custom-built dredge. Often a custom dredge manufacturer can build a dredge capable of satisfying even the most stringent requirements.

PART II: DREDGE DESCRIPTIONS

Presentation Format

12. Summaries of this investigation are provided in two convenient forms. Table 1 is a summary chart of all dredges reviewed. This is included so comparisons of capabilities can be made easily. Since extreme variations often exist, a summary chart will enable a project engineer to rule out certain dredges while indicating various other possibilities that may be acceptable. If values given in the chart are near the range of project requirements, the dredge should be considered further until closer analysis deems it suitable or unsuitable for required application.

13. Individual dredge descriptions are provided in Appendix A. Characteristics of each dredge are summarized and a photograph or drawing is included. Special features and options available are also noted. Transport and assembly/disassembly equipment required is provided when available.

Important Comparison Guidelines

14. Caution should be exercised when using these descriptions, as values given are to be used only as guides. Every effort has been made to present figures that can be directly compared from one dredge to another. Many items can be directly compared; however, potential misunderstandings are especially possible for the following: capacity, cutterhead horsepower, claimed production rates, claimed pumping distances, and equipment needed for transport/assembly.

15. The capacity listed is the freshwater capacity of the main dredge pump. Some manufacturers give a specific volume rate/head value while others include a complete pump curve. When the entire curve is supplied, the author has chosen a point near maximum head at the best pump efficiency. It is possible that the single value stated in some manufacturer's literature was not taken at this point; therefore direct comparison on this point may be misleading.

16. Potential problems may also exist with cutterhead horsepower figures. Some manufacturers list actual horsepower to the cutterhead while others list total horsepower of the cutterhead plus other mechanisms such as winches. Assuming that all horsepower is supplied to the cutterhead may misrepresent a dredge. Whenever possible, only actual cutterhead horsepower is given.

17. Claimed production rates and pumping distances inherently cause problems when comparing one manufacturer's product with another's. When a specific production rate and pumping distance were supplied by the manufacturer, they were reported as is. When production curves were supplied, upper limits of both rates and distances for coarse sand were chosen. Since both vary with condition and size of in situ material, direct comparison is difficult and becomes a matter of personal judgment.

18. Equipment needed for transport and assembly is a special item not usually covered in the manufacturer's literature. Responses from dredge companies varied greatly in degree of detail for the equipment required. Some replies provided very detailed information on types, sizes, and number of trucks and cranes needed while others only included general information. All information received relative to this category has been provided. Potential misunderstandings could occur by assuming that the information listed is all-inclusive. One dredge may appear to require more equipment than another, but the reason may be because more detailed information was included by one of the manufacturers.

19. Special attention should be given to the dredge length category. In all cases except cutterhead dredges, the length stated is the total length of the dredge including the cutter mechanism. Due to the varying lengths of cutterhead ladders, the length listed for these dredges is the total hull length only, except where indicated otherwise. This method of stating dredge length is consistent with most manufacturers' literature.

General Use of Descriptions

20. Results of this survey are dredge-by-dredge descriptions

intended to be used for comparing dredges with the understanding that values given for certain characteristics may be misleading. An attempt has been made to present all characteristics on an equal basis. However, in some cases the manufacturers' methods of presenting details make direct comparisons difficult.

21. The summary chart (Table 1) will give the design engineer a good indication of capabilities available, and the dredge-by-dredge descriptions can detail what is actually available to the United States market. Once several possible dredges are chosen, individual descriptions will provide a more detailed review. When one or more dredges appear compatible with project demands, the addresses in Appendix B can be used for contacting individual dredge manufacturers. Custom dredge manufacturers, whose addresses are also listed, could be contacted at this time as well.

22. Even though standard lines or series dredges have been reviewed and summarized, the data presented should be used for preliminary comparison purposes only. Actual values can and in most cases will vary for each specific application. Since most dredges are modified to suit user demands, each dredge is actually a custom-built dredge to some degree. Specific values given are only intended to describe a particular dredge's representative characteristics.

PART III: SUMMARY

23. A literature survey revealed a wide range in portable dredge capabilities and design features. Options available are almost unlimited. Dredging depths range from 10 ft in smaller, one-piece units to over 60 ft for larger, modular-built dredges. Production rates range from 20 to over 1,800 cu yd/hr. Wide ranges of cutter mechanisms are available including ordinary cutterheads, ladders with chain cutters, bucket wheels, wide horizontal cutters, twin rotating vertical cutters, open suction dustpans, and jet pumps.

24. The degree of portability varies greatly from one dredge to another. Many portable dredges can be transported in one piece on flatbed trailers. Some dredges have amphibious capabilities and can load and unload themselves. Other small dredges can be skid-loaded. Larger dredges require cranes to facilitate loading, while still others use cranes to assemble modular components. The portable dredge definition includes some large, modular-built dredges which require substantial support equipment.

25. The report user should be aware of potential problems in comparing portable dredges using this report alone. This report provides initial insight into portable dredges available and lists addresses so that additional information can be obtained. Only after contact has been made with the manufacturer should a dredge be ruled out from the selection process.

26. This report summarizes a wide variety of portable dredges available in the United States. Individual descriptions and a summary chart of all dredges illustrate available options to design engineers. Appendix B includes addresses of all companies surveyed so the designer may request additional detailed information to help with his dredge selection.

Dredge/Company	General Characteristics					
	Length ft	Width ft	Weight lb	Draft ft	Fuel Capacity gal	Anchoring Sy
D-24-1/Mud Cat	35	10	34,000	1.67	275	Spuds and winch
D-30/Mud Cat	40	12	46,000	2	500	Spuds and winch
SP-810/Mud Cat	25.5	8	12,200	1.83	100	Winches
MC-915/Mud Cat	38.9	9	21,000	1.75	360	Winches
SP-915/Mud Cat	39.5	9	23,000	1.75	360	Winches
MC-920S/Mud Cat	47.5	9	25,000	1.75	360	Winches
MD-610/VMI	27.5	8	14,000	1.67	160	Winches
MD-615/VMI	35.5	8	16,500	1.67	160	Winches
MD-615B/VMI	35.5	8	18,000	1.75	160	Winches
MD-815B/VMI	40.5	8	22,500	1.67	260	Winches
MD-820/VMI	45.5	8	25,000	1.67	260	Winches
370 Dragon/Ellicott	36	12	50,000	2.75	700	Spuds and winch
770 Dragon/Ellicott	48	21	148,000	3	2,800	Spuds and winch
970 Dragon/Ellicott	54	21	158,000	3	2,800	Spuds and winch
1470 Dragon/Ellicott	72	26	326,000	4	7,400	Spuds and winch
1570 Dragon/Ellicott	82	27	410,000	4	7,900	Spuds and winch
3770 Super Dragon/Ellicott	110	30	770,000	5.33	16,000	Spuds and winch
B890 Wheel Dragon/Ellicott	79	23	230,000	3	2,800	Spuds and winch
B1090 Wheel Dragon/Ellicott	81	23	236,000	3.1	2,800	Spuds and winch
B1590 Wheel Dragon/Ellicott	106	30	500,000	4	9,400	Spuds and winch
B1690 Wheel Dragon/Ellicott	110	30	550,000	4	9,000	Spuds and winch
B4000 Wheel Dragon/Ellicott	142	32	1,250,000	6	21,000	Spuds and winch
Swintek Series/Eagle	64	18	97,100-141,200	1.5	1,500	Winches
Cutterhead Series/Eagle	47-78.5	18-20	69,400-184,000	Variable	Variable	Spuds and winch
D-24-1/W&S Development	35	10	34,000	1.67	275	Spuds and winch
D-30/W&S Development	40	12	46,000	2	500	Spuds and winch
PD-6S/AMMCO	35	16	59,000	2	2,000	Spuds and winch
PD-8C/AMMCO	40	18	88,900	2.5	3,000	Spuds and winch
PD-10S/AMMCO	40	18	96,400	2.67	3,000	Spuds and winch
PD-10C/AMMCO	50	20	112,000	2.83	5,500	Spuds and winch
PD-12E/AMMCO	50	20	120,600	3	5,500	Spuds and winch
PD-14S/AMMCO	50	20	125,000	3.17	5,500	Spuds and winch
PD-16L/AMMCO	50	20	128,100	3.17	5,500	Spuds and winch
PD-20S/AMMCO	70	22	213,606	3.42	8,000	Spuds and winch
PD-20D/AMMCO	100	32	616,595	4.42	25,000	Spuds and winch
12X10-400-HYD/Quality	42	15.5	54,000	6	600	Walking spuds
Mudmaster/DMI	39-59	8-12	15,500-38,000	2.5	275-315	Many options
Economaster/DMI	75-76	18-20	141,000-215,000	3.14-4.0	2,700-3,750	Spuds and winch
Portamaster/DMI	85-92	22	272,000-312,000	3.9-4.0	4,500-5,400	Spuds and winch
Powermaster/DMI	100-115	28-30	404,000-515,000	3.9-4.2	11,000	Spuds and winch
Duramaster/DMI	148-158	28-34	947,000-1,177,000	5.7-6.2	19,200-30,000	Spuds and winch
212-150/Delta	40	16	42,000	2.67	600	Winches
212EG-160SS/Delta	42	19	65,000	3.3	900	Trolley line or
218EG-300SS/Delta	50	25	110,000	3.3	Electric	Trolley line or
MD 410/Mini Dredge	35.5-55.75	10	28,200-38,400	2	1,500	Winches or spud
Mud Duck/GENFLO	35.5	8	13,000-18,000	1.67-2.33	Day tank	Capstan and wir
Billy Goat I/Kenner Marine	35	12	35,000	2	500	Spuds and winch
Billy Goat II/Kenner Marine	40	12	50,000	2	1,240	Spuds and winch

* 1 = dredge can be moved "as is" or with slight modification.
2 = dredge requires takedown (3 or less major pieces).
3 = dredge requires takedown (more than 3 major pieces).

** NA = Not available.

Table 1

Dredge Summary Chart

System	Portability Rating*	Main Dredge Pump					Cutter Assembly	
		Type	Horsepower	Capacity gpm/ft-head	Suction Diam in.	Discharge Diam in.	Cutter Type	Horsep
nches	1	Centrifugal	238	2,600/108	8	8	Cutterhead	30
nches	2	Centrifugal	318	2,700/153	10	8	Cutterhead	40
	1	Centrifugal	160	1,000/115	6	6	8-ft-wide horizontal cutter	5
	1	Centrifugal	175	2,000/180	8	6	9-ft-wide horizontal cutter	25
	1	Centrifugal	175	2,000/124	8	6	9-ft-wide horizontal cutter	25
	1	Centrifugal	325	3,000/150	10	8	9-ft-wide horizontal cutter	25
	1	Centrifugal	135	2,000/160	8	6	8-ft-wide horizontal cutter	35
	1	Centrifugal	135	2,000/160	8	6	8-ft-wide horizontal cutter	35
	1	Centrifugal	175	2,000/160	8	6	8-ft-wide horizontal cutter	35
	1	Centrifugal	175	3,250/160	12	8	8-ft-wide horizontal cutter	35
	1	Centrifugal	175	3,250/160	12	8	8-ft-wide horizontal cutter	35
ches	1	Centrifugal	308	5,000/177	10-12	8-10	Cutterhead	40
ches	2	Centrifugal	520	10,500/155	14-16	12-14	Cutterhead	100
ches	2	Centrifugal	725	11,500/185	14-16	14-16	Cutterhead	100
ches	3	Centrifugal	970	17,000/180	16-18	16-18	Cutterhead	250
hes	3	Centrifugal	1,125	19,000/180	20	18-20	Cutterhead	250
hes	3	Centrifugal	2,250	34,000/205	27	22-24	Cutterhead	750
hes	3	Centrifugal	520	10,500/150	14	12-14	Bucket wheel or cutter	100
nches	3	Centrifugal	725	11,800/185	14	12-14	Bucket wheel or cutter	106
hes	3	Centrifugal	970-1,125	17,500/190	18-20	16-18	Bucket wheel or cutter	250
nes	3	Centrifugal	1,125	19,000/185	20	18-20	Bucket wheel	250
hes	3	Centrifugal	2,875	35,000/250	27	24-27	Bucket wheel	500
	2	Centrifugal	350	2,650-3,400/200	10-12	8-10	Ladder with chain cutter	15-2
nches	2-3	Centrifugal	154-750	1,800-7,100/200-230	8-14	6-12	Cutterhead	15-5
nches	1	Centrifugal	238	2,600/108	8	8	Cutterhead	30
nches	2	Centrifugal	318	2,700/153	10	8	Cutterhead	40
nches	2	Centrifugal	170	NA**	8	6	Cutterhead	20
nches	2	Centrifugal	335	NA	10	8	Cutterhead	35
nches	2	Centrifugal	335	NA	12	10	Cutterhead	50
nches	2	Centrifugal	445	NA	12	10	Cutterhead	125
nches	2	Centrifugal	445	NA	14	12	Cutterhead	125
nches	2	Centrifugal	670	NA	16	14	Cutterhead	125
nches	2	Centrifugal	670	NA	18	16	Cutterhead	125
nches	3	Centrifugal	1,125	NA	NA	20	Cutterhead	250
nches	3	Centrifugal	1,700	NA	24	20	Cutterhead	500
	1	Centrifugal	300	5,000/39	12	10	16-ft-wide horizontal cutter	45
	1-2	Centrifugal	48-275	Consult company	6-12	4-10	Many options	5-25
nches	2-3	Centrifugal	365-725	1,200-9,500 gpm	10-18	8-16	Cutterhead	50-10
nches	3	Centrifugal	725-1,125	2,200-16,200 gpm	14-20	12-20	Cutterhead	160-22
nches	3	Centrifugal	1,124-2,250	4,200-32,000 gpm	20-24	16-24	Cutterhead	225
nches	3	Centrifugal	2,305-3,600	6,900-41,900 gpm	24-32	20-27	Cutterhead	450-90
	1	Centrifugal	270	4,000/150	NA	12	Twin vertical cutters	80
or winches	2	Centrifugal	400	5,000/160	NA	12	Twin vertical cutters	80
or winches	2	Centrifugal	1,000	12,000 gpm	NA	18-24	Twin vertical cutters	NA
uds	1	Jet pump	150-300	1,122-2,245 gpm	--	10-18	Cutterhead with jet pump	40
inches	1	Jet pump	130-350	NA	--	8-18	Water jet or cutterhead	10-40% En
nches	1	Centrifugal	170	Consult company	8	8	Cutterhead	14.5
nes	1	Centrifugal	265	Consult company	12	10	Cutterhead	18.5

Cutter Assembly		Working Capacity		
tter Type	Horsepower	Digging Depth ft	Production Rates cu yd/hr	Pumping Distance ft
	30	15	90-140	to 2,000
	40	25	110-200	to 2,000
horizontal cutter	5	10	60-100	to 2,700
horizontal cutter	25	15	75-120	to 2,700
horizontal cutter	25	15	75-120	to 2,000
horizontal cutter	25	20	to 180	NA
horizontal cutter	35.5	10	to 150	Calculated from capacity
horizontal cutter	35.5	15	to 150	Calculated from capacity
horizontal cutter	35.5	15	to 150	Calculated from capacity
horizontal cutter	35.5	15	to 200	Calculated from capacity
horizontal cutter	35.5	20	to 200	Calculated from capacity
	40	20	to 290	to 4,700
	100	26	to 560	to 4,000
	100	33	to 560	to 6,000
	250	42	to 760	to 8,200
	250	50	to 1,135	to 6,200
	750	58	to 1,900	to 7,400
eel or cutter	100	26	to 550	to 4,300
eel or cutter	106	26	to 560	to 5,400
eel or cutter	250	36.5	to 760	to 8,200
eel	250	36	to 1,150	to 6,100
eel	500	50	to 1,400	to 8,750
th chain cutter	15-25	35	116-150	Powered for 200-ft TDH
d	15-50	12-51	106-440	Variable
d	30	15	90-140	to 2,000
d	40	25	110-200	to 2,000
d	20	30	50-100	to 1,500
d	35	54	100-200	to 3,000
d	50	54	150-200	to 3,000
d	125	54	150-250	to 5,000
d	125	54	150-400	to 5,500
d	125	54	300-500	to 5,000
d	125	54	300-500	to 5,000
ad	250	54	400-900	to 4,000
ad	500	60	660-1,000	to 7,000
de horizontal cutter	45	6+	to 1,000	Calculated from 3,000 gpm/140-ft head
ions	5-25	10-18	20-400	100 to over 5,000
ad	50-100	21-26	50-450	Consult company
ad	160-225	28-34	220-750	Consult company
ad	225	35-52	200-1,425	Consult company
ad	450-900	49-61	300-1,850	Consult company
tical cutters	80	16	to 300	to 4,000
tical cutters	80	23	to 300	to 4,300
tical cutters	NA	30	to 900	to 7,000
ad with jet pump	40	3-21+	to 350	to 3,000
t or cutterhead	10-40% Engine hp	15	100-400 tons/hr	to 3,300
ad	14.5	23	Consult company	Consult company
ad	18.5	26	Consult company	Consult company

APPENDIX A: DESCRIPTIONS OF DREDGES

The following are individual dredge descriptions that summarize the general characteristics and special features or options available for each dredge. Also included is information on transport and assembly/disassembly equipment required. A photograph or drawing is provided when available. Descriptions of dredges are given on pages listed below:

DREDGE MODEL OR SERIES: D-24-1

MANUFACTURER: MUD CAT Division of National Car Rental Systems, Inc.

GENERAL:

Length	35 ft (10.7 m)
Width	10 ft (3.05 m)
Weight	34,000 lb (15,400 kg)
Draft	20 in. (51 cm)
Fuel Capacity	275 gal (1,040 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	238 hp (177 kw)
Capacity	2,600 gpm at 108-ft head (164 ℓ/s at 32.9 m)
Suction Diameter	8 in. (20 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	30 hp (22.4 kw)

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m)
Production Rates	90-140 cu yd/hr (69-107 cu m/hr)
Pumping Distances	To 2,000 ft (610 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported in one piece on 40-ft (12.1 m) trailer; 20-ton (18,144 kg) crane needed to unload.

REMARKS:

Dredge made by W&S Development, Inc.


JANITOR

DREDGE MODEL OR SERIES: D-30

MANUFACTURER: MUD CAT Division of National Car Rental Systems, Inc.

GENERAL:

Length	40 ft (12.2 m)
Width	12 ft (3.7 m)
Weight	46,000 lb (20,900 kg)
Draft	24 in. (61 cm)
Fuel Capacity	500 gal (1,890 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	318 hp (237 kw)
Capacity	2,700 gpm at 153-ft head (170 ℓ/s at 46.6 m)
Suction Diameter	10 in. (25 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	40 hp (30 kw)

WORKING CAPACITY:

Digging Depth	25 ft (7.6 m)
Production Rates	110-200 cu yd/hr (84-153 cu m/hr)
Pumping Distances	To 2,000 ft (610 m)

ANCHORING SYSTEM:

Type . . . . . Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported in two truckloads; 20-ton (18,144 kg) crane needed to unload and assemble.

REMARKS:

Dredge made by W&S Development, Inc.

DREDGE MODEL OR SERIES: SP-810

MANUFACTURER: MUD CAT Division of National Car Rental Systems, Inc.

GENERAL:

Length	25 ft 6 in. (7.8 m)
Width	8 ft (2.4 m)
Weight	12,200 lb (5,550 kg)
Draft	22 in. (56 cm)
Fuel Capacity	100 gal (380 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	160 hp (119 kw)
Capacity	1,000 gpm at 115-ft head (63 ℓ/s at 35 m)
Suction Diameter	6 in. (15 cm)
Discharge Diameter	6 in. (15 cm)

CUTTER ASSEMBLY:

Type	8-ft-wide horizontal cutter
Horsepower to Cutter	5 hp (3.7 kw)

WORKING CAPACITY:

Digging Depth	10 ft (3 m)
Production Rates	60-100 cu yd/hr (46-76 cu m/hr)
Pumping Distances	To 2,700 ft (823 m)

ANCHORING SYSTEM:

Type	Winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported on 40-ft (12.1 m) flatbed trailer as complete unit; 10-ton (9,072 kg) crane needed to unload.

REMARKS:

Maximum forward and reverse travel speed is 21 ft (6.4 m)/min. Average cutting speed is 8 to 12 ft (2.4 to 3.6 m)/min.

DREDGE MODEL OR SERIES: MC-915

MANUFACTURER: MUD CAT Division of National Car Rental System, Inc.

GENERAL:

Length	38 ft 11 in. (11.8 m)
Width	9 ft (2.7 m)
Weight	21,000 lb (9,500 kg)
Draft	21 in. (53 cm)
Fuel Capacity	360 gal (1,360 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	175 hp (131 kw)
Capacity	2,000 gpm at 180-ft head (126 ℓ/s at 54.9 m)
Suction Diameter	8 in. (20 cm)
Discharge Diameter	6 in. (15 cm)

CUTTER ASSEMBLY:

Type	9-ft-wide horizontal cutter
Horsepower to Cutter	25 hp (18.6 kw)

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m)
Production Rates	75-120 cu yd/hr (57-92 cu m/hr)
Pumping Distances	To 2,700 ft (823 m)

ANCHORING SYSTEM:

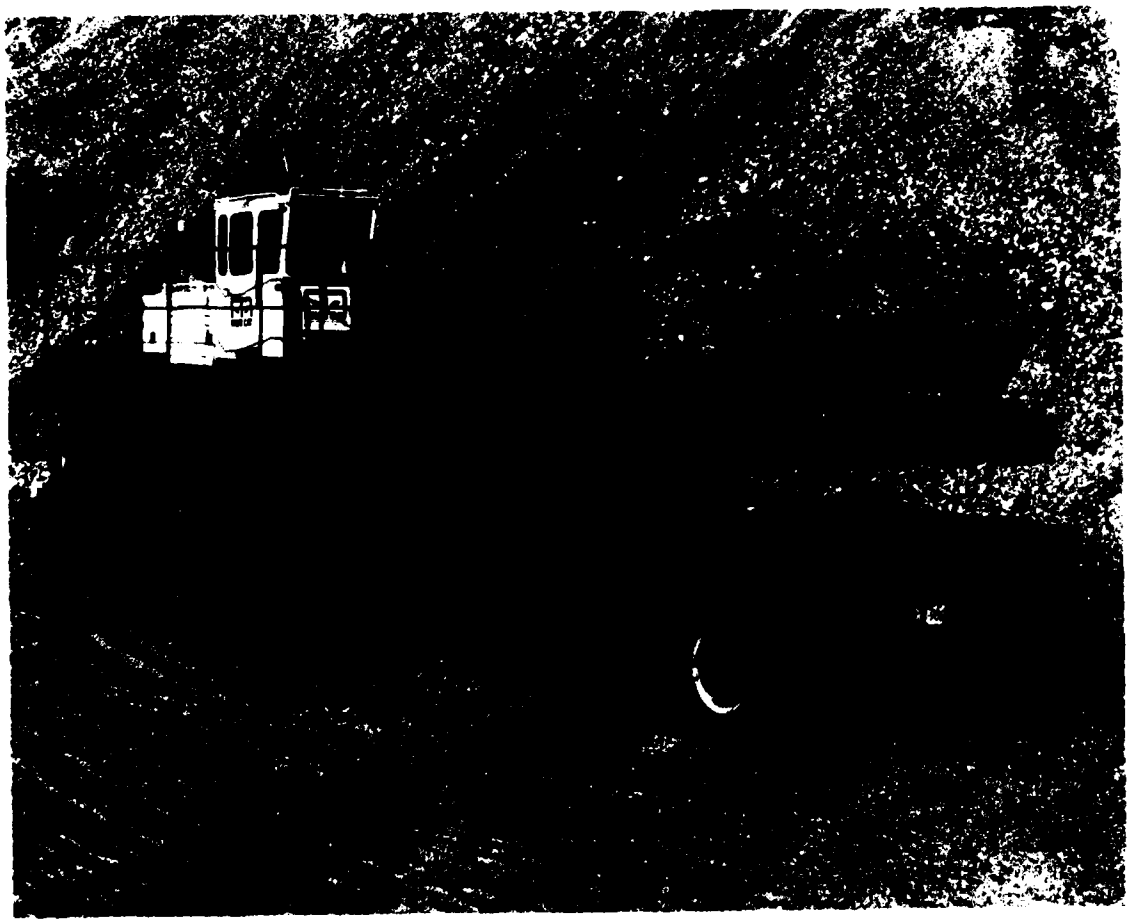
Type	Winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported on 40-ft (12.1 m) flatbed trailer as complete unit; 20-ton (18,144 kg) crane needed to unload.

REMARKS:

Maximum forward and reverse travel speed is 50 ft (15.2 m)/min. Average cutting speed is 8 to 12 ft (2.4 to 3.6 m)/min.



DREDGE MODEL OR SERIES: SP-915

MANUFACTURER: MUD CAT Division of National Car Rental System, Inc.

GENERAL:

Length	39 ft 6 in. (12 m)
Width	9 ft (2.7 m)
Weight	23,000 lb (10,400 kg)
Draft	21 in. (53 cm)
Fuel Capacity	360 gal (1,360 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	175 hp (131 kw)
Capacity	2,000 gpm at 124-ft head (126 ℓ/s at 37.8 m)
Suction Diameter	8 in. (20 cm)
Discharge Diameter	6 in. (15 cm)

CUTTER ASSEMBLY:

Type	9-ft-wide horizontal cutter
Horsepower to Cutter	25 hp (18.6 kw)

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m)
Production Rates	75-120 cu yd/hr (57-92 cu m/hr)
Pumping Distances	To 2,000 ft (610 m)

ANCHORING SYSTEM:

Type	Winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Shipped as complete unit on 40-ft (12.1 m) flatbed trailer; 20-ton (18,144 kg) crane to unload.

REMARKS:

Maximum forward and reverse travel speed is 50 ft (15.2 m)/min. Average cutting speed is 8 to 12 ft (2.4 to 3.6 m)/min. Dredge pictured is actually the MC-915 model, which is similar in overall dimensions but different in location of main pump.

No Picture Available for the MC-920S

DREDGE MODEL OR SERIES: MC-920S

MANUFACTURER: MUD CAT Division of National Car Rental System, Inc.

GENERAL:

Length	47 ft 5 in. (14.5 m)
Width	9 ft (2.7 m)
Weight	25,000 lb (11,300 kg)
Draft	21 in. (53 cm)
Fuel Capacity	360 gal (1,360 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	325 hp (242 kw)
Capacity	3,000 gpm at 150-ft head (190 ℓ/s at 45.7 m)
Suction Diameter	10 in. (25 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	9-ft-wide horizontal cutter
Horsepower to Cutter	25 hp (18.6 kw)

WORKING CAPACITY:

Digging Depth	20 ft (6.1 m)
Production Rates	To 180 cu yd/hr (138 cu m/hr)
Pumping Distances	To 5,200 ft (1,590 m)

ANCHORING SYSTEM:

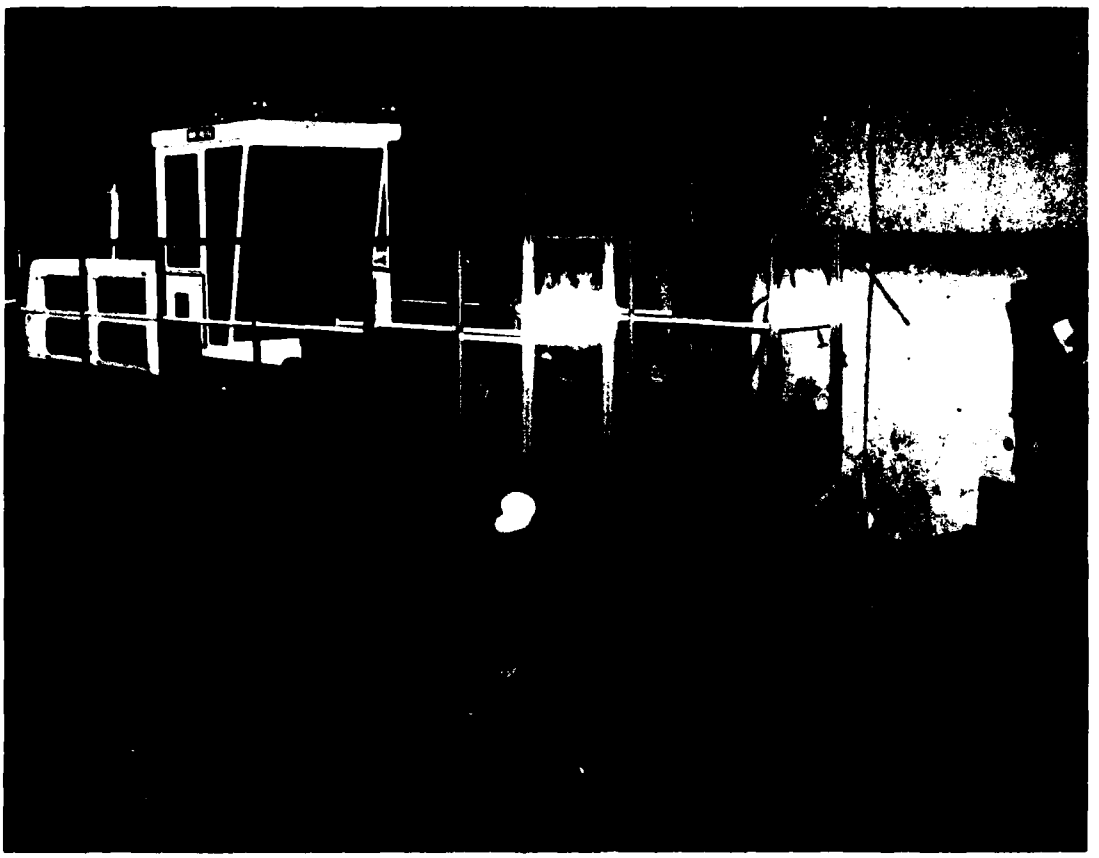
Type	Winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Shipped as complete unit on 44-ft (13.4 m) flatbed trailer; 20-ton (18,144 kg) crane needed to unload.

REMARKS:

Dredge designed for long distance discharge without use of booster pumps.



DREDGE MODEL OR SERIES: MD-610 Mini Dredge

MANUFACTURER: Vaughn-Maitlen Industries (VMI)

GENERAL:

Length	27 ft 6 in. (8.4 m)
Width	8 ft (2.4 m)
Weight	14,000 lb (6,400 kg)
Draft	20 in. (51 cm)
Fuel Capacity	160 gal (600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	135 hp (101 kw)
Capacity	2,000 gpm at 160-ft head (126 ℓ/s at 48.8 m)
Suction Diameter	8 in. (20 cm)
Discharge Diameter	6 in. (15 cm)

CUTTER ASSEMBLY:

Type	8-ft-wide horizontal cutter
Horsepower to Cutter	35.5 hp (26.5 kw)

WORKING CAPACITY:

Digging Depth	10 ft (3 m)
Production Rates	To 150 cu yd/hr (115 cu m/hr)
Pumping Distances	Calculated from capacity

ANCHORING SYSTEM:

Type	Hydraulic winch

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Can be towed with 1-ton (0.9 kg) pickup and trailer; minimum of 35-ton (31,751 kg) crane needed for unloading.

REMARKS:

Maximum forward and reverse speed is 50 ft (15.2 m)/min with maximum cutting speed of 10 ft (3.05 m)/min. Maximum depth of cut is 23 in. (58 cm) under typical conditions.

DREDGE MODEL OR SERIES: MD-615 Mini Dredge

MANUFACTURER: Vaughn-Maitlen Industries (VMI)

GENERAL:

Length	35 ft 6 in. (10.9 m)
Width	8 ft (2.4 m)
Weight	16,500 lb (7,500 kg)
Draft	20 in. (51 cm)
Fuel Capacity	160 gal (600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	135 hp (101 kw)
Capacity	2,000 gpm at 160-ft head (126 ℓ/s at 48.8 m)
Suction Diameter	8 in. (20 cm)
Discharge Diameter	6 in. (15 cm)

CUTTER ASSEMBLY:

Type	8-ft-wide horizontal cutter
Horsepower to Cutter	35.5 hp (26.5 kw)

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m)
Production Rates	To 150 cu yd/hr (115 cu m/hr)
Pumping Distances	Calculated from capacity

ANCHORING SYSTEM:

Type	Hydraulic winch

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported with 1-1/2-ton (1,360 kg) truck with tandem axle trailer. Minimum of 35-ton (31,751 kg) crane needed for unloading.

REMARKS:

Maximum forward and reverse speed is 50 ft (15.2 m)/min with maximum cutting speed of 10 ft (3.05 m)/min. Maximum depth of cut is 23 in. (58 cm) under typical conditions.

DREDGE MODEL OR SERIES: MD-615B Mini Dredge

MANUFACTURER: Vaughn-Maitlen Industries (VMI)

GENERAL:

Length	35 ft 6 in. (10.9 m)
Width	8 ft (2.4 m)
Weight	18,000 lb (8,200 kg)
Draft	21 in. (53 cm)
Fuel Capacity	160 gal (600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	175 hp (131 kw)
Capacity	2,000 gpm at 160-ft head (126 ℓ/s at 48.8 m)
Suction Diameter	8 in. (20 cm)
Discharge Diameter	6 in. (15 cm)

CUTTER ASSEMBLY:

Type	8-ft-wide horizontal cutter
Horsepower to Cutter	35.5 hp (26.5 kw)

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m)
Production Rates	To 150 cu yd/hr (115 cu m/hr)
Pumping Distances	Calculated from capacity

ANCHORING SYSTEM:

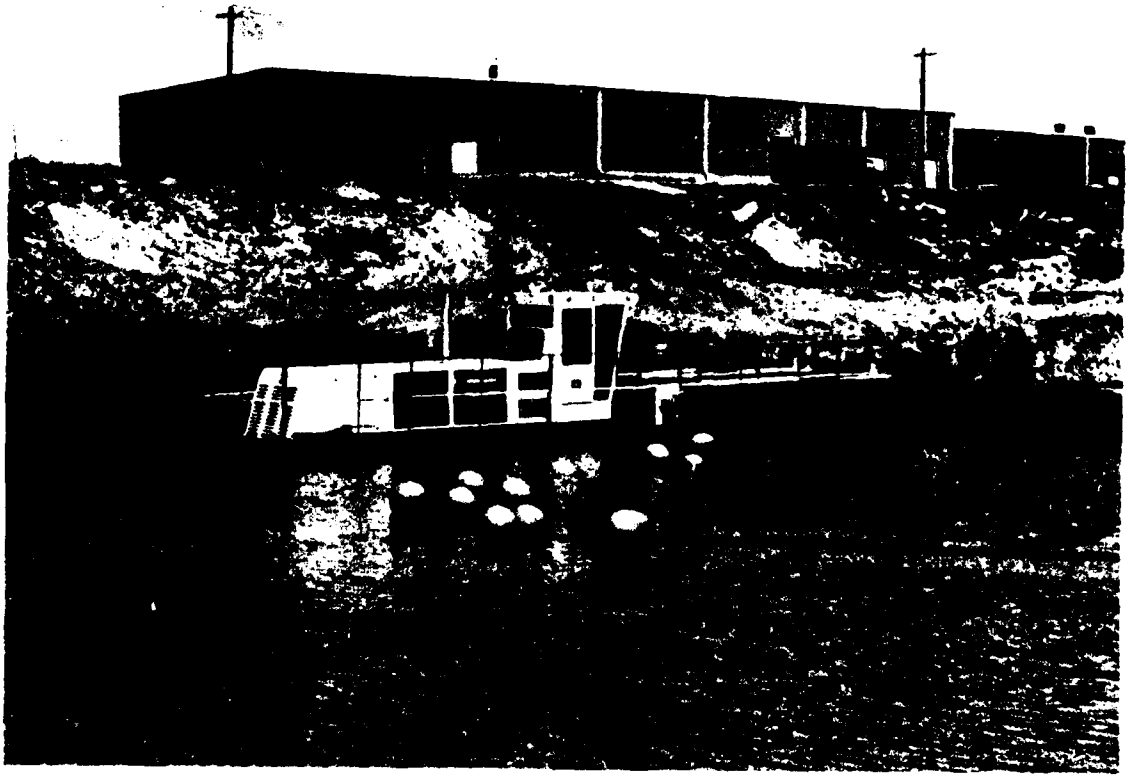
Type	Hydraulic winch

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported with 1-1/2-ton (1,360 kg) truck with tandem axle trailer. Minimum of 35-ton (31,751 kg) crane needed for unloading.

REMARKS:

Maximum forward and reverse speed is 50 ft (15.2 m)/min with maximum cutting speed of 10 ft (3.05 m)/min. Maximum depth of cut is 23 in. (58 cm) under typical conditions.



DREDGE MODEL OR SERIES: MD-815B Mini Dredge

MANUFACTURER: Vaughn-Maitlen Industries (VMI)

GENERAL:

Length	40 ft 6 in. (12.3 m)
Width	8 ft (2.4 m)
Weight	22,500 lb (10,200 kg)
Draft	20 in. (51 cm)
Fuel Capacity	260 gal (990 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	175 hp (131 kw)
Capacity	3,250 gpm at 160-ft head (205 ℓ/s at 48.8 m)
Suction Diameter	12 in. (31 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	8-ft-wide horizontal cutter
Horsepower to Cutter	35.5 hp (26.5 kw)

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m)
Production Rates	To 200 cu yd/hr (153 cu m/hr)
Pumping Distances	Calculated from capacity

ANCHORING SYSTEM:

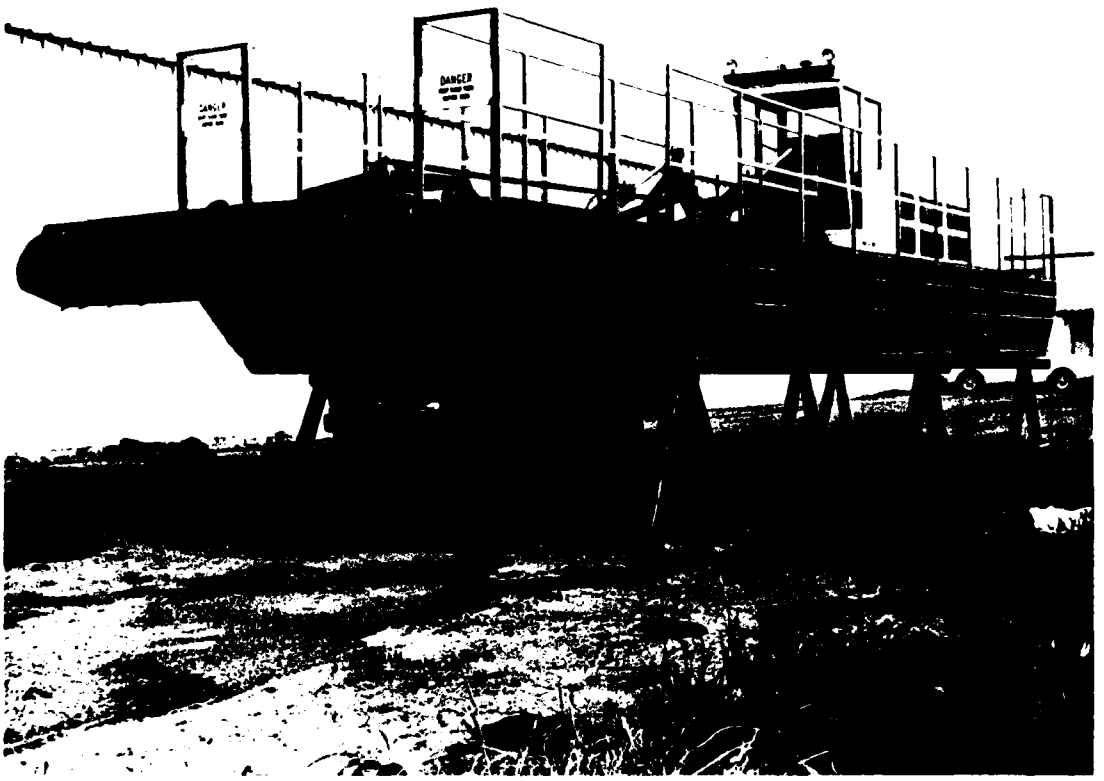
Type	Hydraulic winch

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported with 2-ton (1,814 kg) truck with lowboy tandem axle trailer. Minimum of 35-ton (31,751 kg) crane needed for unloading.

REMARKS:

Maximum forward and reverse speed is 50 ft (15.2 m)/min with maximum cutting speed of 10 ft (3/05 m)/min. Maximum depth of cut is 23 in. (58 cm) under typical conditions.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DREDGE MODEL OR SERIES: MD-820 Mini Dredge

MANUFACTURER: Vaughn-Maitlen Industries (VMI)

GENERAL:

Length	45 ft 6 in. (13.9 m)
Width	8 ft (2.4 m)
Weight	25,000 lb (11,400 kg)
Draft	20 in. (51 cm)
Fuel Capacity	260 gal (990 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	175 hp (131 kw)
Capacity	3,250 gpm at 160-ft head (205 ℓ/s at 48.8 m)
Suction Diameter	12 in. (31 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	8-ft-wide horizontal cutter
Horsepower to Cutter	35.5 hp (26.5 kw)

WORKING CAPACITY:

Digging Depth	20 ft (6.1 m)
Production Rates	To 200 cu yd/hr (153 cu m/hr)
Pumping Distances	Calculated from capacity

ANCHORING SYSTEM:

Type	Hydraulic winch

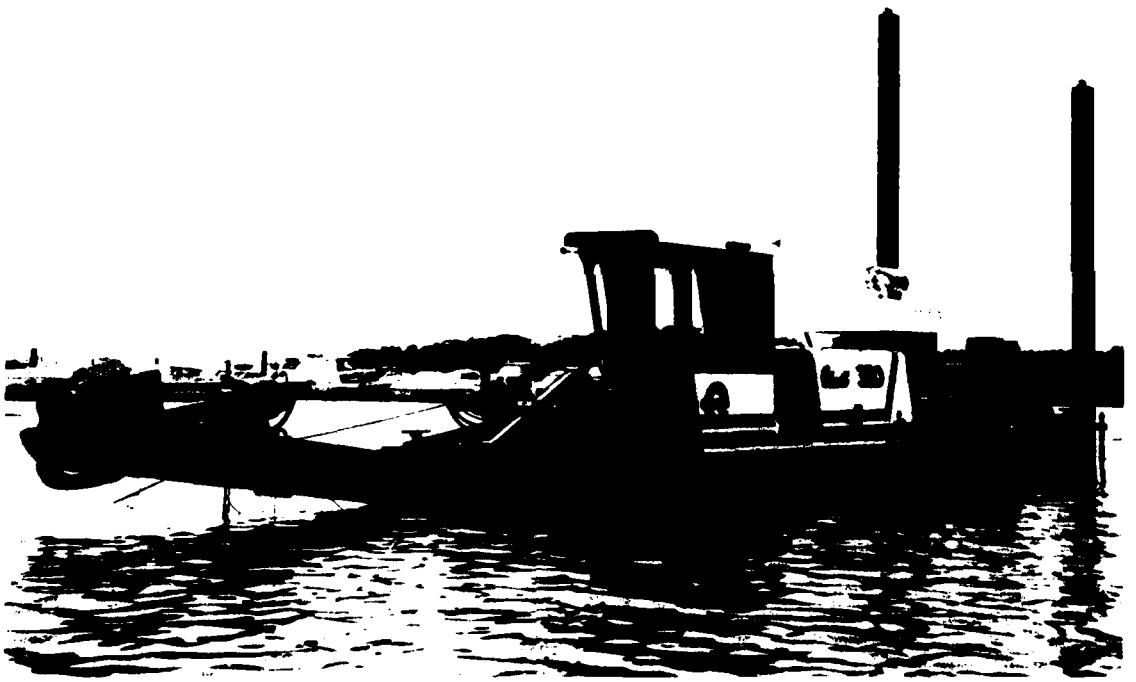
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported by 2-ton (1,814 kg) truck with lowboy tandem axle trailer. Minimum of 35-ton (31,751 kg) crane needed for unloading.

REMARKS:

Maximum forward and reverse speed is 50 ft (15.2 m)/min with maximum cutting speed of 10 ft (3.05 m)/min. Maximum depth of cut is 23 in. (58 cm) under typical conditions.

370 Dragon



DREDGE MODEL OR SERIES: 370 Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	36 ft (11 m)
Width	12 ft (3.7 m)
Weight	50,000 lb (22,700 kg)
Draft	33 in. (84 cm)
Fuel Capacity	700 gal (2,700 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	308 hp (230 kw)
Capacity	5,000 gpm at 177-ft head (315 ℓ/s at 54 m)
Suction Diameter	10-12 in. (25-31 cm)
Discharge Diameter	8-10 in. (20-25 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	40 hp (30 kw)

WORKING CAPACITY:

Digging Depth	20 ft (6.1 m)
Production Rates	To 290 cu yd/hr (222 cu m/hr)
Pumping Distances	To 4,700 ft (1,430 m)

ANCHORING SYSTEM:

Type	Spuds and winches

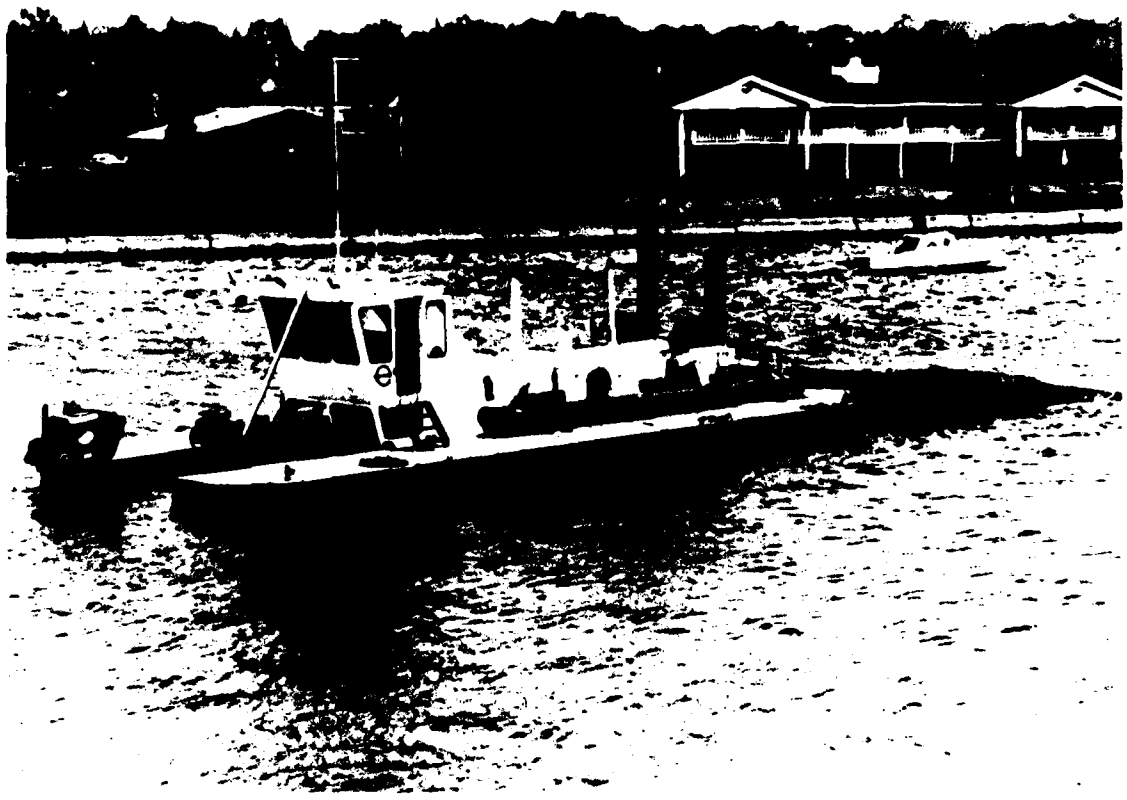
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported on one flatbed truck. One 35-ton (31,751 kg) crane needed for unloading.

REMARKS:

Forward and aft ballast tanks provide for self-priming dredge pump. When tanks are filled with specified quantity of water, the dredge suction pipe will be submerged under all draft conditions and dredge will have adequate freeboard for normal operations.

770 Dragon



DREDGE MODEL OR SERIES: 770 Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	48 ft (14.6 m)
Width	21 ft (6.4 m)
Weight	148,000 lb (67,100 kg)
Draft	36 in. (91 cm)
Fuel Capacity	2,800 gal (10,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	520 hp (388 kw)
Capacity	10,500 gpm at 155-ft head (662 ℓ/s at 47 m)
Suction Diameter	14-16 in. (36-41 cm)
Discharge Diameter	12-14 in. (31-36 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	100 hp (74.6 kw)

WORKING CAPACITY:

Digging Depth	26 ft (7.9 m)
Production Rates	To 560 cu yd/hr (428 cu m/hr)
Pumping Distances	To 4,000 ft (1,220 m)

ANCHORING SYSTEM:

Type	Spuds and winches

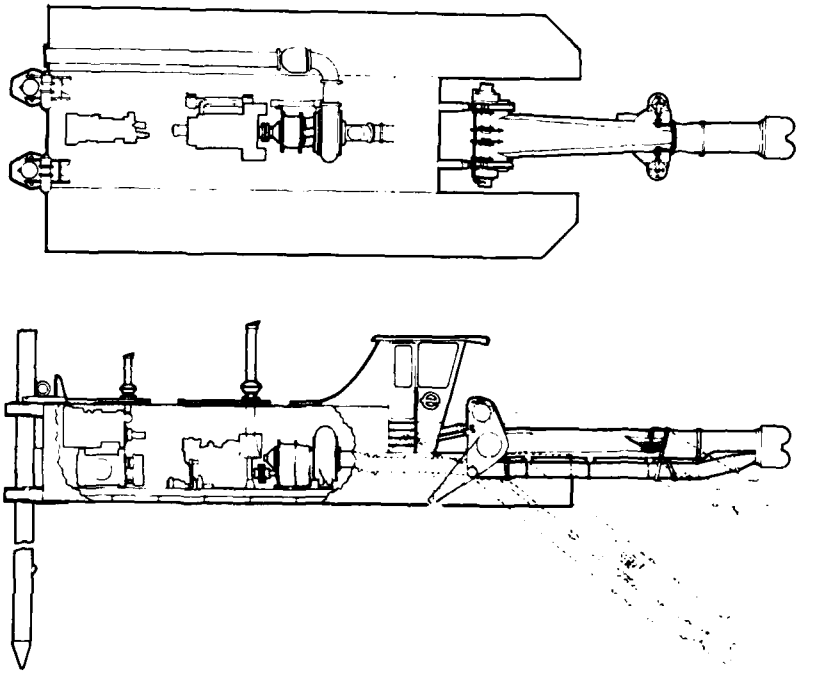
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Five flatbed trucks needed for transport. Two 35-ton (31,751 kg) cranes needed to place center section, then one 25-ton (22.679 kg) crane to complete assembly.

REMARKS:

Hull is constructed in three portions for quick assembly. Dredge is designed to meet American Bureau of Shipping (ABS) River Rules.

970 Dragon



DREDGE MODEL OR SERIES: 970 Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	54 ft (16.5 m)
Width	21 ft (6.4 m)
Weight	158,000 lb (71,700 kg)
Draft	36 in. (91 cm)
Fuel Capacity	2,800 gal (10,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	725 hp (541 kw)
Capacity	11,500 gpm at 185-ft head (726 ℓ/s at 56.4 m)
Suction Diameter	14-16 in. (36-41 cm)
Discharge Diameter	14-16 in. (36-41 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	100 hp (74.6 kw)

WORKING CAPACITY:

Digging Depth	33 ft (10 m)
Production Rates	To 560 cu yd/hr (428 cu m/hr)
Pumping Distances	To 6,000 ft (1,830 m)

ANCHORING SYSTEM:

Type	Spuds and winches

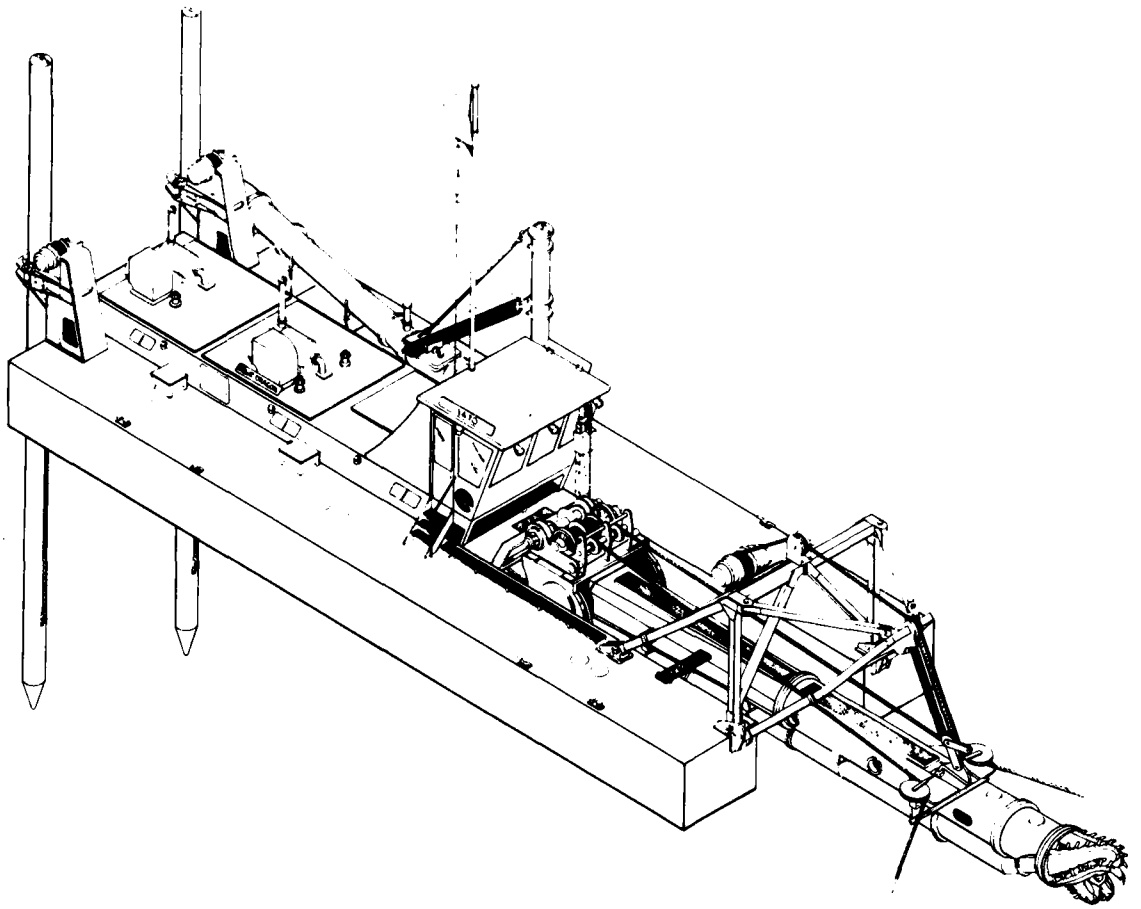
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Five flatbed trucks needed for transport. Two 35-ton (31,751 kg) cranes needed to place center section, then one 25-ton (22,679 kg) crane to complete assembly.

REMARKS:

Hull is constructed in three portions for quick assembly.
Dredge is designed to meet ABS River Rules.

1470 Dragon Dredge



DREDGE MODEL OR SERIES: 1470 Dragon Dredge

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	72 ft (22 m)
Width	26 ft (7.9 m)
Weight	326,000 lb (147,900 kg)
Draft	48 in. (122 cm)
Fuel Capacity	7,400 gal (28,000 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	970 hp (723 kw)
Capacity	17,000 gpm at 180-ft head (1,073 ℓ/s at 55 m)
Suction Diameter	16-18 in. (41-46 cm)
Discharge Diameter	16-18 in. (41-46 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	250 hp (186 kw)

WORKING CAPACITY:

Digging Depth	42 ft (12.8 m)
Production Rates	To 760 cu yd/hr (581 cu m/hr)
Pumping Distances	To 8,200 ft (2,500 m)

ANCHORING SYSTEM:

Type	Spuds and winches

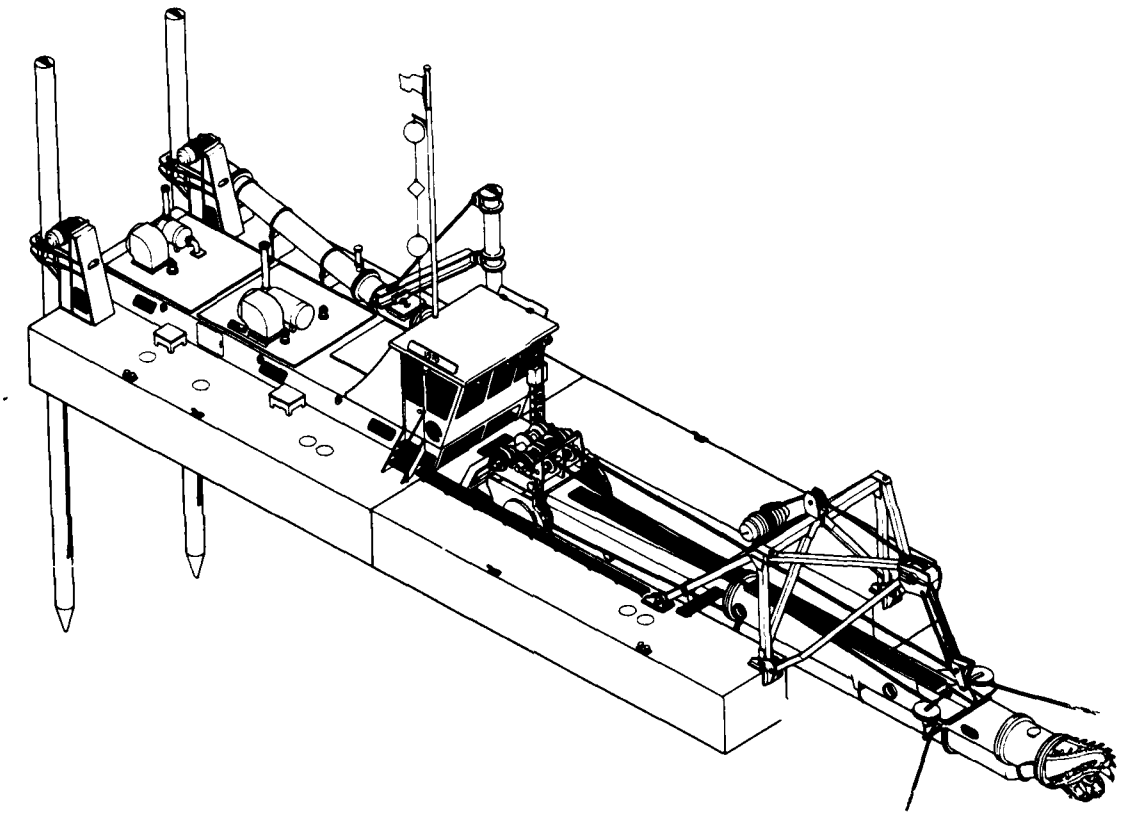
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Eight flatbed trucks needed for transport. Two 60-ton (54,431 kg) cranes needed to place center section, then one 60-ton (54,431 kg) crane to complete assembly.

REMARKS:

Hull is constructed in three portions for quick assembly. Dredge is designed to meet ABS River Rules.

1570 Dragon



DREDGE MODEL OR SERIES: 1570 Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	82 ft (25 m)
Width	27 ft (8.2 m)
Weight	410,000 lb (186,000 kg)
Draft	48 in. (122 cm)
Fuel Capacity	7,900 gal (30,000 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	1,125 hp (839 kw)
Capacity	19,000 gpm at 180-ft head (1,200 ℓ/s at 55 m)
Suction Diameter	20 in. (51 cm)
Discharge Diameter	18-20 in. (46-51 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	250 hp (186 kw)

WORKING CAPACITY:

Digging Depth	50 ft (15.2 m)
Production Rates	To 1,135 cu yd/hr (868 cu m/hr)
Pumping Distances	To 6,200 ft (1,890 m)

ANCHORING SYSTEM:

Type	Spuds and winches

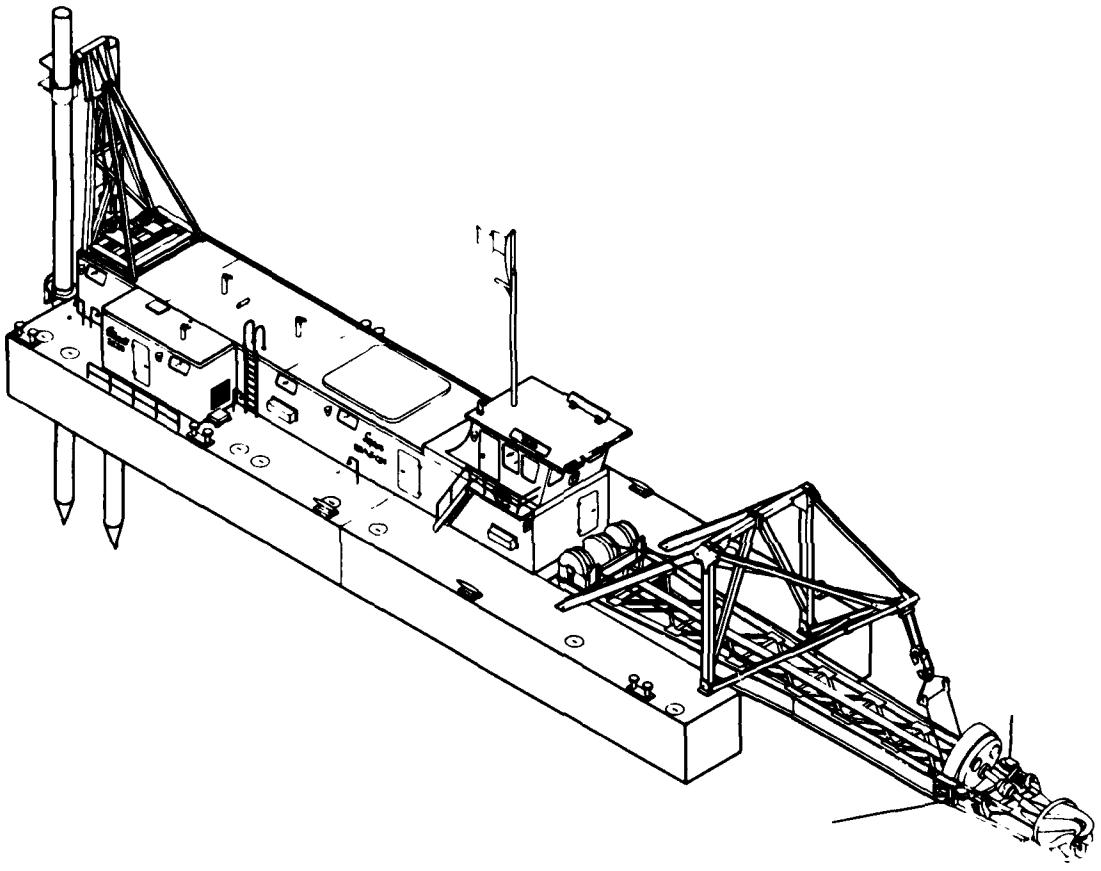
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Ten flatbed trucks needed for transport. Two 60-ton (54,431 kg) cranes needed to place center section, then one 60-ton (54,431 kg) crane needed to complete assembly.

REMARKS:

Hull is constructed in five portions and is designed to meet ABS River Rules.

3770 Super Dragon



DREDGE MODEL OR SERIES: 3770 Super Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	110 ft (33.5 m)
Width	30 ft (9.1 m)
Weight	770,000 lb (349,300 kg)
Draft	64 in. (163 cm)
Fuel Capacity	16,000 gal (60,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	2,250 hp (1,680 kw)
Capacity	34,000 gpm at 205-ft head (2,145 ℓ/s at 62.5 m)
Suction Diameter	27 in. (69 cm)
Discharge Diameter	22-24 in. (56-61 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	750 hp (560 kw)

WORKING CAPACITY:

Digging Depth	58 ft (17.7 m)
Production Rates	To 1,900 cu yd/hr (1,450 cu m/hr)
Pumping Distances	To 7,400 ft (2,260 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Eighteen flatbed trucks needed for transport. One 50-ton (45,359 kg) crane with 50-ft-long (15.2 m) boom and one 75-ton (68,038 kg) crane with 50-ft-long (15.2 m) boom needed for assembly.

REMARKS:

Hull is constructed in six portions and designed for offshore use. Series replaces 3000 Super Dragon series.

B890 Wheel Dragon

DREDGE MODEL OR SERIES: B890 Wheel Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	79 ft (24 m)
Width	23 ft (7 m)
Weight	230,000 lb (104,300 kg)
Draft	36 in. (91 cm)
Fuel Capacity	2,800 gal (10,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	520 hp (388 kw)
Capacity	10,500 gpm at 150-ft head (660 ℓ/s at 45.7 m)
Suction Diameter	14 in. (36 cm)
Discharge Diameter	12-14 in. (31-36 cm)

CUTTER ASSEMBLY:

Type	Bucket wheel or cutter
Horsepower to Cutter	100 hp (74.6 kw)

WORKING CAPACITY:

Digging Depth	26 ft (7.9 m)
Production Rates	To 550 cu yd/hr (420 cu m/hr)
Pumping Distances	To 4,300 ft (1,310 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Seven flatbed trucks needed for transport. One 50-ton (45,359 kg) or two 35-ton (31,751 kg) cranes needed to place center section, then one 35-ton (31,751 kg) crane to complete assembly.

REMARKS:

Hull is constructed in five portions. Spud carriage system moves dredge at rate of 14.2 ft (4.33 m)/min. Dredge designed to ABS River Rules.

B1090 Wheel Dragon

DREDGE MODEL OR SERIES: B1090 Wheel Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	81 ft (24.7 m)
Width	23 ft (7 m)
Weight	236,000 lb (107,000 kg)
Draft	37 in. (94 cm)
Fuel Capacity	2,800 gal (10,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	725 hp (541 kw)
Capacity	11,800 gpm at 185-ft head (740 ℓ/s at 56.4 m)
Suction Diameter	14 in. (36 cm)
Discharge Diameter	12-14 in. (31-36 cm)

CUTTER ASSEMBLY:

Type	Bucket wheel
Horsepower to Cutter	106 hp (79 kw)

WORKING CAPACITY:

Digging Depth	26 ft (7.9 m)
Production Rates	To 560 cu yd/hr (428 cu m/hr)
Pumping Distances	To 5,400 ft (1,650 m)

ANCHORING SYSTEM:

Type	Spuds and winches

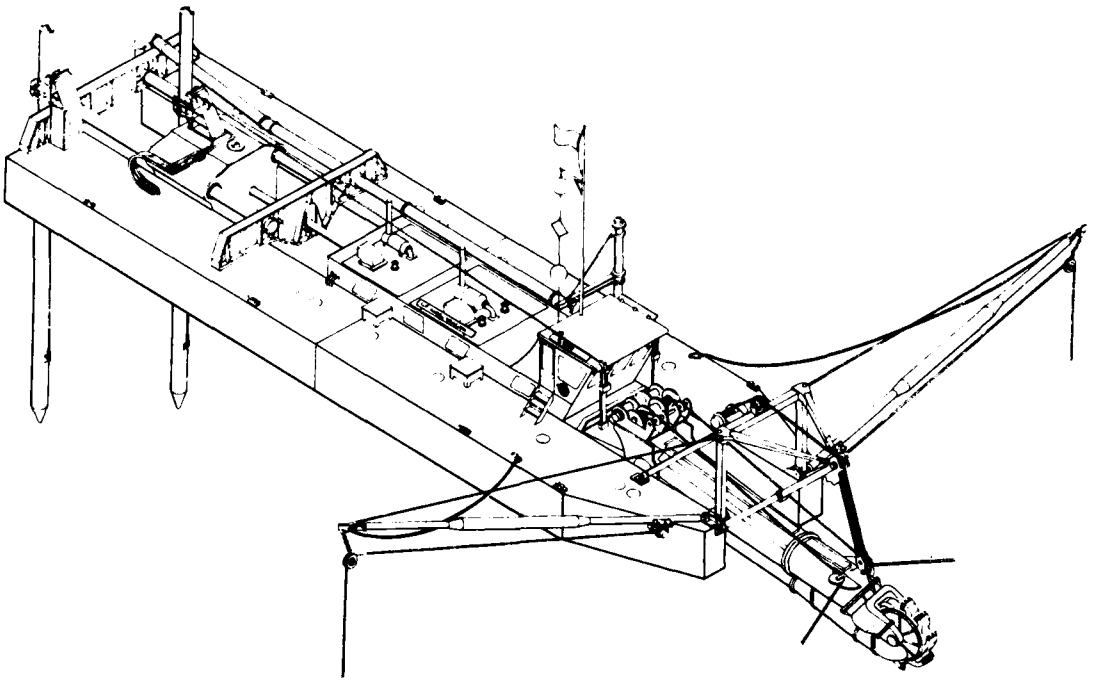
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Seven flatbed trucks needed for transport. One 50-ton (45,359 kg) or two 35-ton (31,751 kg) cranes needed to place center section, then one 35-ton (31,751 kg) crane to complete assembly.

REMARKS:

Dredge similar to B890 (shown in photograph) except main pump horsepower is larger. Hull is constructed in five portions.

B1590 Wheel Dragon



DREDGE MODEL OR SERIES: B1590 Wheel Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	106 ft (32.3 m)
Width	30 ft (9.1 m)
Weight	500,000 lb (226,800 kg)
Draft	48 in. (122 cm)
Fuel Capacity	9,400 gal (35,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	970 or 1,125 hp (723-839 kw)
Capacity	17,000 gpm at 190-ft head (1,070 ℓ/s at 57.9 m)
Suction Diameter	18-20 in. (46-51 cm)
Discharge Diameter	16-18 in. (41-46 cm)

CUTTER ASSEMBLY:

Type	Bucket wheel or cutter
Horsepower to Cutter	250 hp (186 kw)

WORKING CAPACITY:

Digging Depth	36.5 ft (11.1 m)
Production Rates	To 760 cu yd/hr (580 cu m/hr)
Pumping Distances	To 8,200 ft (2,500 m)

ANCHORING SYSTEM:

Type	Spuds and winches

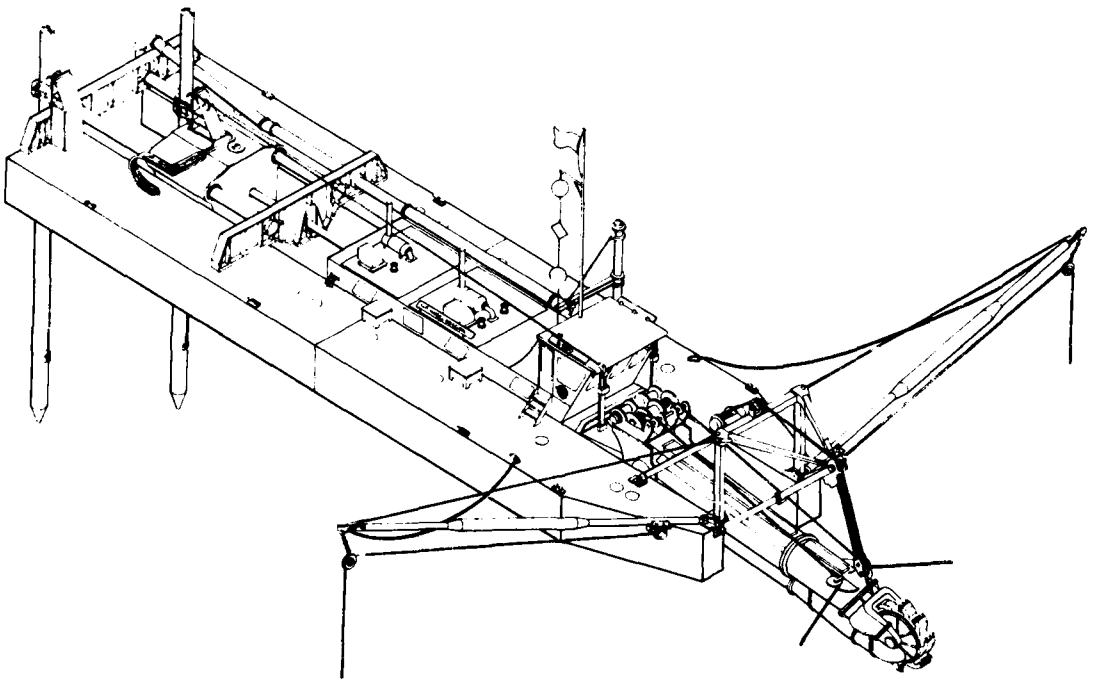
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Ten flatbed trucks needed for transport. Two 60-ton (54,431 kg) cranes needed to place center section, then one 60-ton (54,431 kg) crane needed to complete assembly.

REMARKS:

Hull is constructed in five portions for stability, freeboard, and transportability. Spud carriage system moves dredge at rate of 14.4 ft (4.39 m)/min. Dredge is designed to ABS River Rules.

B1690 Wheel Dragon



DREDGE MODEL OR SERIES: B1690 Wheel Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	110 ft (33.5 m)
Width	30 ft (9.1 m)
Weight	550,000 lb (250,000 kg)
Draft	48 in. (122 cm)
Fuel Capacity	9,000 gal (34,000 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	1,125 hp (839 kw)
Capacity	19,000 gpm at 185-ft head (1,200 ℓ/s at 56.4 m)
Suction Diameter	20 in. (51 cm)
Discharge Diameter	18-20 in. (46-51 cm)

CUTTER ASSEMBLY:

Type	Bucket wheel
Horsepower to Cutter	250 hp (186 kw)

WORKING CAPACITY:

Digging Depth	36 ft (11 m)
Production Rates	To 1,150 cu yd/hr (880 cu m/hr)
Pumping Distances	To 6,100 ft (1,860 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Ten flatbed trucks needed for transport. Two 60-ton (54,431 kg) cranes needed to place center section, then one 60-ton (54,431 kg) crane needed to complete assembly.

REMARKS:

Dredge similar to B1590 (shown in photograph) except main pump horsepower is larger. Hull is constructed in five portions for stability, freeboard, and transportability.

B4000 Wheel Dragon

DREDGE MODEL OR SERIES: B4000 Wheel Dragon

MANUFACTURER: Ellicott Machine Corporation International

GENERAL:

Length	142 ft (43.3 m)
Width	32 ft (9.8 m)
Weight	1,250,000 lb (567,000 kg)
Draft	72 in. (183 cm)
Fuel Capacity	21,000 gal (79,500 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	2,875 hp (2,140 kw)
Capacity	35,000 gpm at 250-ft head (2,200 ℓ/s at 76.2 m)
Suction Diameter	27 in. (69 cm)
Discharge Diameter	24-27 in. (61-69 cm)

CUTTER ASSEMBLY:

Type	Bucket wheel
Horsepower to Cutter	500 hp (373 kw)

WORKING CAPACITY:

Digging Depth	50 ft (15.2 m)
Production Rates	To 1,400 cu yd/hr (1,070 cu m/hr)
Pumping Distances	To 8,750 ft (2,670 m)

ANCHORING SYSTEM:

TYPE	Spuds and winches

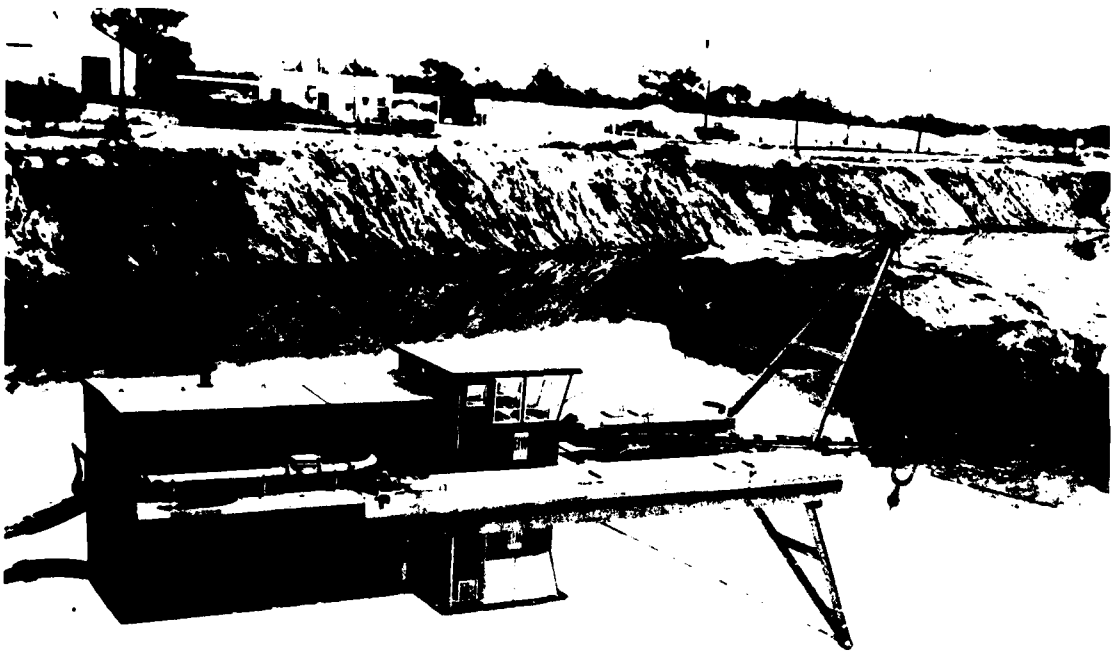
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Twenty flatbed trucks needed for transport.

REMARKS:

Hull is constructed in eight portions and is designed to ABS River Rules. Spud carriage system moves dredge at rate of 27 ft (8.23 m)/min.

Swintek Dredge



DREDGE MODEL OR SERIES: Swintek Dredge

MANUFACTURER: Eagle Iron Works

GENERAL:

Length	64 ft (19.5 m)
Width	18 ft (5.5 m)
Weight	97,100-141,200 lb (44,000-64,000 kg)
Draft	18 in. (46 cm)
Fuel Capacity	1,500 gal (5,700 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	350 hp (261 kw)
Capacity	2,650-3,400 gpm at 200-ft head (170-215 ℓ/s at 61 m)
Suction Diameter	10-12 in. (25-31 cm)
Discharge Diameter	8-10 in. (20-25 cm)

CUTTER ASSEMBLY:

Type	Ladder with chain cutter
Horsepower to Cutter	15-25 hp (11.2-18.6 kw)

WORKING CAPACITY:

Digging Depth	35 ft (10.7 m)
Production Rates	116-150 cu yd/hr
Pumping Distances	Powered for 200-ft TDH (61 m)

ANCHORING SYSTEM:

Type	Winches

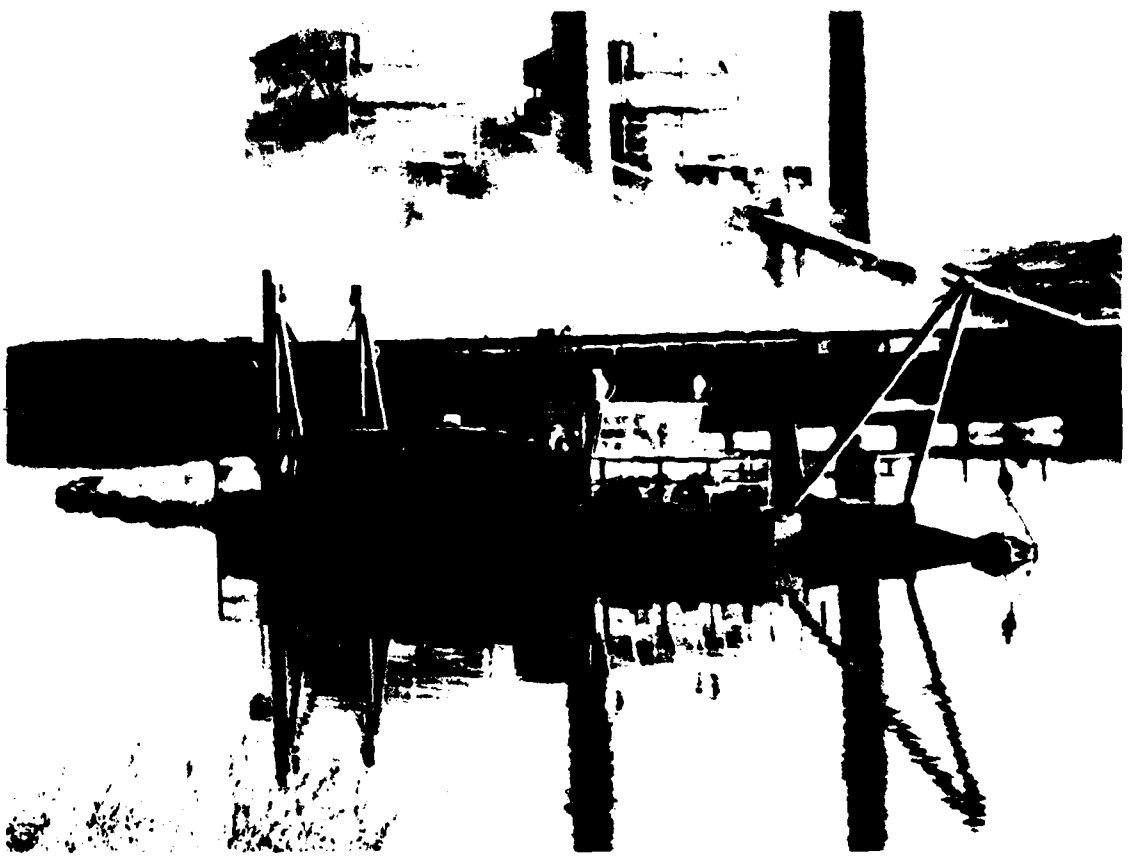
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Three trucks needed for transport. Largest section on 8-in. (20 cm) dredge weighs 48,600 lb (22,000 kg).

REMARKS:

Rectangular pontoons built for easy removal and transport.

Eagle Cutterhead



DREDGE MODEL OR SERIES: Cutterhead Dredge

MANUFACTURER: Eagle Iron Works

GENERAL:

Length	47-78.5 ft (14.3-23.9 m)
Width	18-20 ft (5.5-6.1 m)
Weight	69,400-184,000 lb (31,500-83,500 kg)
Draft	Variable
Fuel Capacity	Variable

PUMP:

Type	Centrifugal
Main Pump Horsepower	154-750 hp (115-559 kw)
Capacity	1,800-7,100 gpm at 200- to 230-ft head (114-448 ℓ/s at 61-70 m)
Suction Diameter	8-14 in. (20-36 cm)
Discharge Diameter	6-12 in. (15-31 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	15-50 hp (11.2-37.3 kw)

WORKING CAPACITY:

Digging Depth	12-51 ft (3.6-15.5 m)
Production Rates	106-440 cu yd/hr (81-336 cu m/hr)
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Varies with size, weight, and job specification.

REMARKS:

Bolted, pontoon-style sectional hull allows assembly/disassembly in a matter of hours. Dredges built to individual job specifications.

DREDGE MODEL OR SERIES: D-24-1

MANUFACTURER: W&S Development Inc.

GENERAL:

Length	35 ft (10.7 m)
Width	10 ft (3.05 m)
Weight	34,000 lb (15,400 kg)
Draft	20 in. (51 cm)
Fuel Capacity	275 gal* (1,040 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	238 hp (177 kw)
Capacity	2,600 gpm at 108-ft head (164 ℓ/s at 32.9 m)
Suction Diameter	8 in. (20 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	30 hp (22.4 kw)

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m)
Production Rates	90-140 cu yd/hr (69-107 cu m/hr)
Pumping Distances	To 2,000 ft (610 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported in one piece. Can be lifted by one crane or pulled on rollers.

REMARKS:

Same dredge also made for MUD CAT (Model D-24-1)

* Optional 500-gal floating tank.

DREDGE MODEL OR SERIES: D-30

MANUFACTURER: W&S Development Inc.

GENERAL:

Length	40 ft (12.2 m)
Width	12 ft (3.7 m)
Weight	46,000 lb (20,900 kg)
Draft	24 in. (61 cm)
Fuel Capacity	500 gal (1,900 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	318 hp (237 kw)
Capacity	2,700 gpm at 153-ft head (170 ℓ/s at 46.6 m)
Suction Diameter	10 in. (25 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	40 hp (30 kw)

WORKING CAPACITY:

Digging Depth	25 ft (7.6 m)
Production Rates	110-200 cu yd/hr (84-153 cu m/hr)
Pumping Distances	To 2,000 ft (610 m)

ANCHORING SYSTEM:

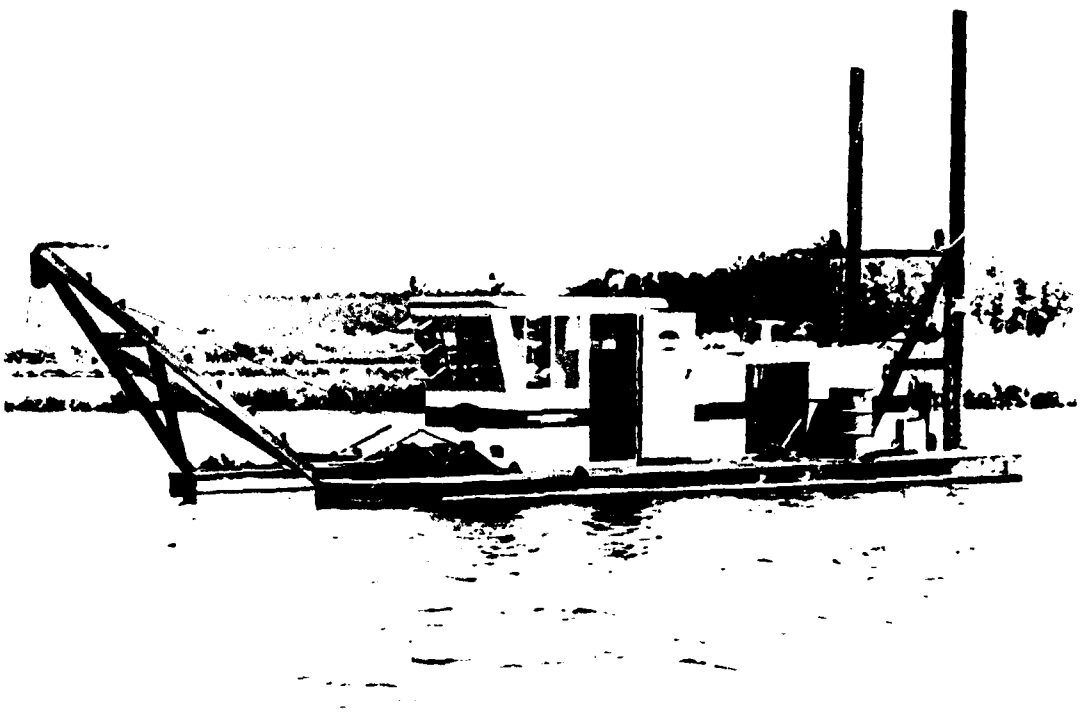
Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Transported in two pieces. Can be lifted by one crane or pulled on rollers.

REMARKS:

Same dredge also made for MUD CAT (Model D-30)



DREDGE MODEL OR SERIES: PD-6S

MANUFACTURER: American Marine & Machinery Company, Inc. (AMMCO)

GENERAL:

Length	35 ft (10.7 m)
Width	16 ft (4.9 m)
Weight	59,000 lb (26,800 kg)
Draft	24 in. (61 cm)
Fuel Capacity	2,000 gal (7,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	170 hp (127 kw)
Capacity	Not available
Suction Diameter	8 in. (20 cm)
Discharge Diameter	6 in. (15 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	20 hp (14.9 kw)

WORKING CAPACITY:

Digging Depth	To 30 ft (9.1 m)
Production Rates	50-100 cu yd/hr (38-76 cu m/hr)
Pumping Distances	To 1,500 ft (460 m)

ANCHORING SYSTEM:

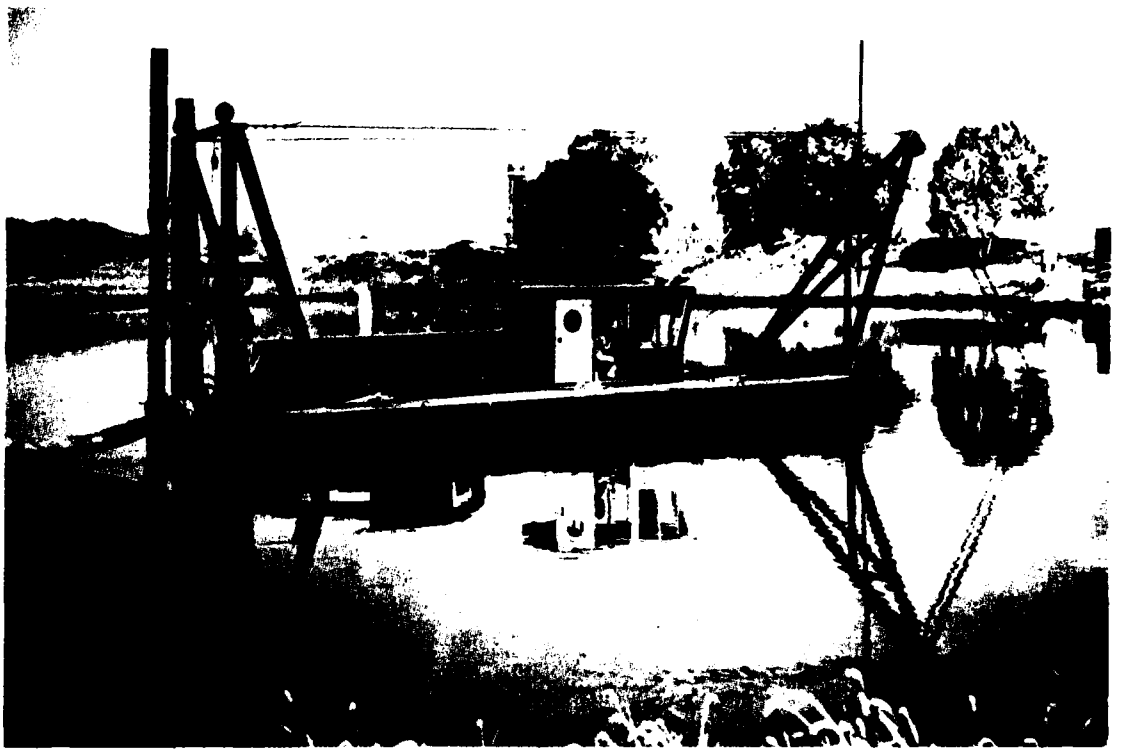
Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in a few hours.



DREDGE MODEL OR SERIES: PD-8C

MANUFACTURER: American Marine & Machinery Company, Inc. (AMMCO)

GENERAL:

Length	40 ft (12.2 m)
Width	18 ft (5.5 m)
Weight	88,900 lb (40,300 kg)
Draft	30 in. (76 cm)
Fuel Capacity	3,000 gal (11,400 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	335 hp (250 kw)
Capacity	Not available
Suction Diameter	10 in. (25 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	35 hp (26 kw)

WORKING CAPACITY:

Digging Depth	To 54 ft (16.5 m)
Production Rates	100-200 cu yd/hr (76-153 cu m/hr)
Pumping Distances	To 3,000 ft (915 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in one day.

PD-10S

DREDGE MODEL OR SERIES: PD-10S

MANUFACTURER: American Marine & Machinery Company, INc. (AMMCO)

GENERAL:

Length	40 ft (12.2 m)
Width	18 ft (5.5 m)
Weight	96,400 lb (43,700 kg)
Draft	32 in. (81 cm)
Fuel Capacity	3,000 gal (11,400 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	335 hp (250 kw)
Capacity	Not available
Suction Diameter	12 in. (31 cm)
Discharge Diameter	10 in. (25 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	50 hp (37.3 kw)

WORKING CAPACITY:

Digging Depth	To 54 ft (16.5 m)
Production Rates	150-200 cu yd/hr (115-153 cu m/hr)
Pumping Distances	To 3,000 ft (915 m)

ANCHORING SYSTEM:

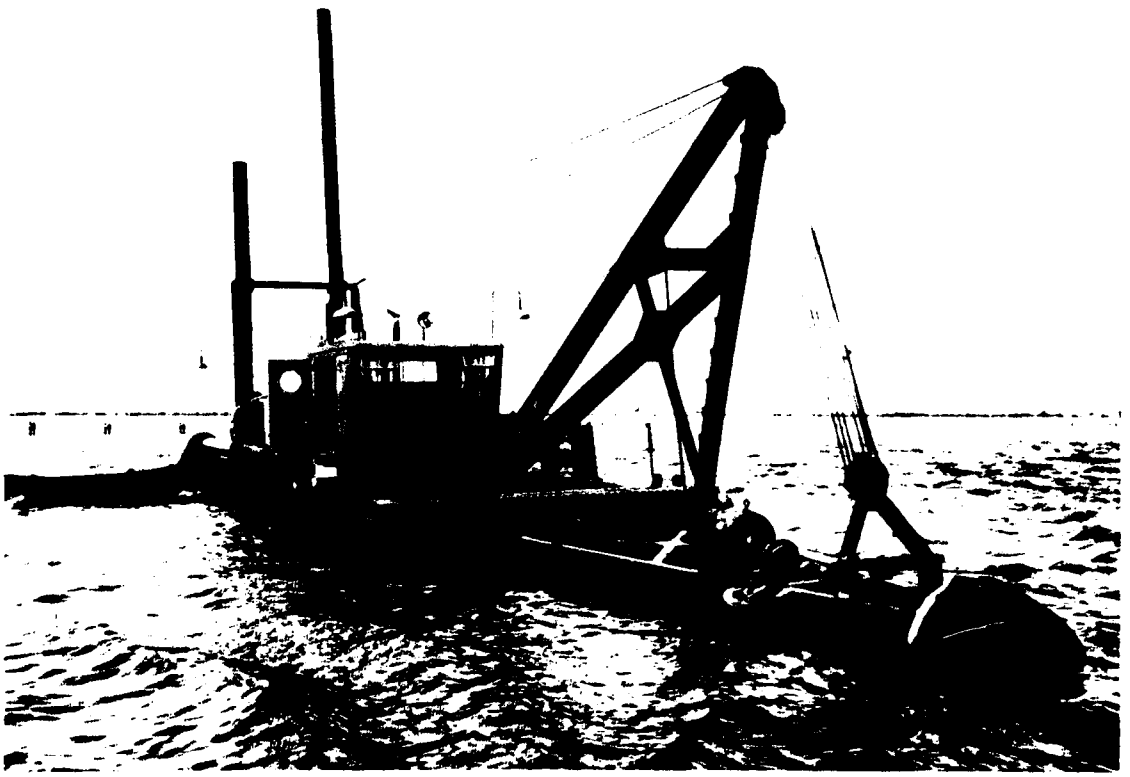
Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in one day.



DREDGE MODEL OR SERIES: PD-10C

MANUFACTURER: American Marine & Machinery Company, Inc. (AMMCO)

GENERAL:

Length	50 ft (15.2 m)
Width	20 ft (6.1 m)
Weight	112,000 lb (50,800 kw)
Draft	34 in. (86 cm)
Fuel Capacity	5,500 gal (20,800 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	445 hp (332 kw)
Capacity	Not available
Suction Diameter	12 in. (31 cm)
Discharge Diameter	10 in. (25 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	125 hp (93.2 kw)

WORKING CAPACITY:

Digging Depth	To 54 ft (16.5 m)
Production Rates	150-250 cu yd/hr (115-191 cu m/hr)
Pumping Distances	To 5,000 ft (1,520 m)

ANCHORING SYSTEM:

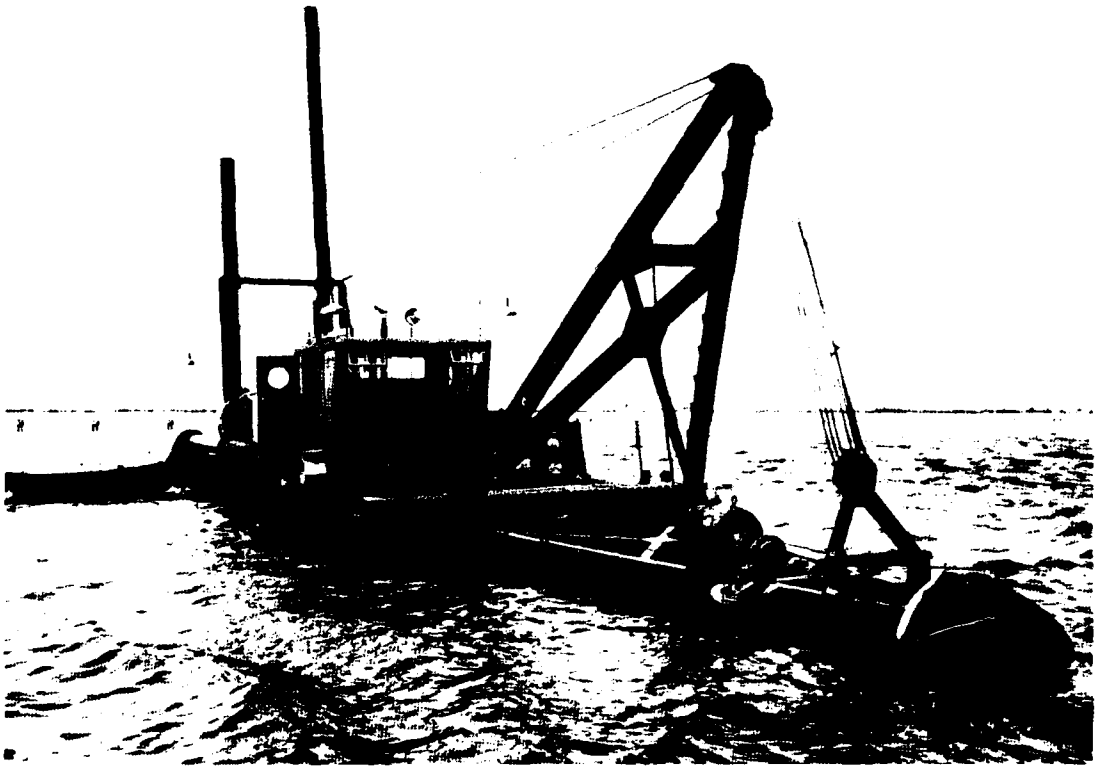
Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in two days.



DREDGE MODEL OR SERIES: PD-12E

MANUFACTURER: American Marine & Machine Company, Inc. (AMMCO)

GENERAL:

Length	50 ft (15.2 m)
Width	20 ft (6.1 m)
Weight	120,600 lb (54,700 kg)
Draft	36 in. (91 cm)
Fuel Capacity	5,500 gal (20,800 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	445 hp (332 kw)
Capacity	Not available
Suction Diameter	14 in. (36 cm)
Discharge Diameter	12 in. (31 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	125 hp (93.2 kw)

WORKING CAPACITY:

Digging Depth	To 54 ft (16.5 m)
Production Rates	150-400 cu yd/hr (115-306 cu m/hr)
Pumping Distances	To 5,500 ft (1,680 m)

ANCHORING SYSTEM:

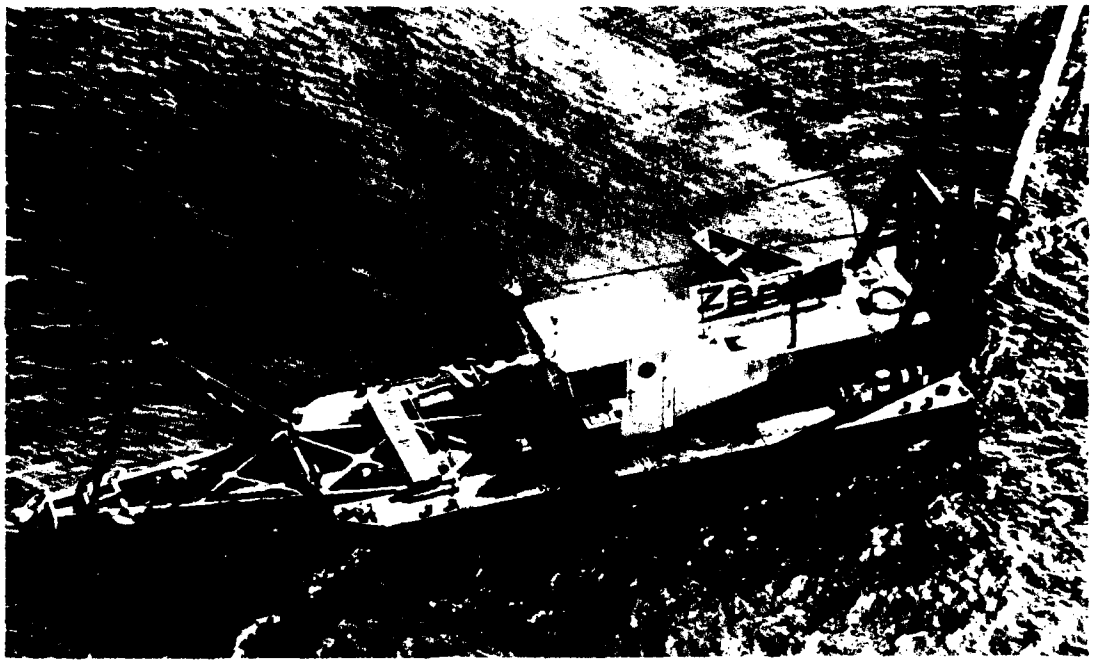
Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in two days.



DREDGE MODEL OR SERIES: PD-14S

MANUFACTURER: American Marine & Machinery Company, Inc. (AMMCO)

GENERAL:

Length	50 ft (15.2 m)
Width	20 ft (6.1 m)
Weight	125,000 lb (56,700 kg)
Draft	38 in. (97 cm)
Fuel Capacity	5,500 gal (20,800 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	670 hp (500 kw)
Capacity	Not available
Suction Diameter	16 in. (41 cm)
Discharge Diameter	14 in. (36 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	125 hp (93.2 kw)

WORKING CAPACITY:

Digging Depth	To 54 ft (16.5 m)
Production Rates	300-500 cu yd/hr (229-382 cu m/hr)
Pumping Distances	To 5,000 ft (1,520 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in two days.

DREDGE MODEL OR SERIES: PD-16L

MANUFACTURER: American Marine & Machinery Company, Inc. (AMMCO)

GENERAL:

Length	50 ft (15.2 m)
Width	20 ft (6.1 m)
Weight	128,100 lb (58,100 kg)
Draft	38 in. (97 cm)
Fuel Capacity	5,500 gal (20,800 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	670 hp (500 kw)
Capacity	Not available
Suction Diameter	18 in. (46 cm)
Discharge Diameter	16 in. (41 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	125 hp (93.2 kw)

WORKING CAPACITY:

Digging Depth	54 ft (16.4 m)
Production Rates	300-500 cu yd/hr (229-382 cu m/hr)
Pumping Distances	To 5,000 (1,520 m)

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in two days.

DREDGE MODEL OR SERIES: PD-20S

MANUFACTURER: American Marine & Machinery Company, Inc. (AMMCO)

GENERAL:

Length	70 ft (21.3 m)
Width	22 ft (6.7 m)
Weight	213,606 lb (96,900 kg)
Draft	41 in. (104 cm)
Fuel Capacity	8,000 gal (30,300 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	1,125 hp (839 kw)
Capacity	Not available
Suction Diameter	Not available
Discharge Diameter	20 in. (51 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	250 hp (186 kw)

WORKING CAPACITY:

Digging Depth	To 54 ft (16.4 m)
Production Rates	400-900 cu yd/hr (306-690 cu m/hr)
Pumping Distances	To 4,000 ft (1,220 m)

ANCHORING SYSTEM:

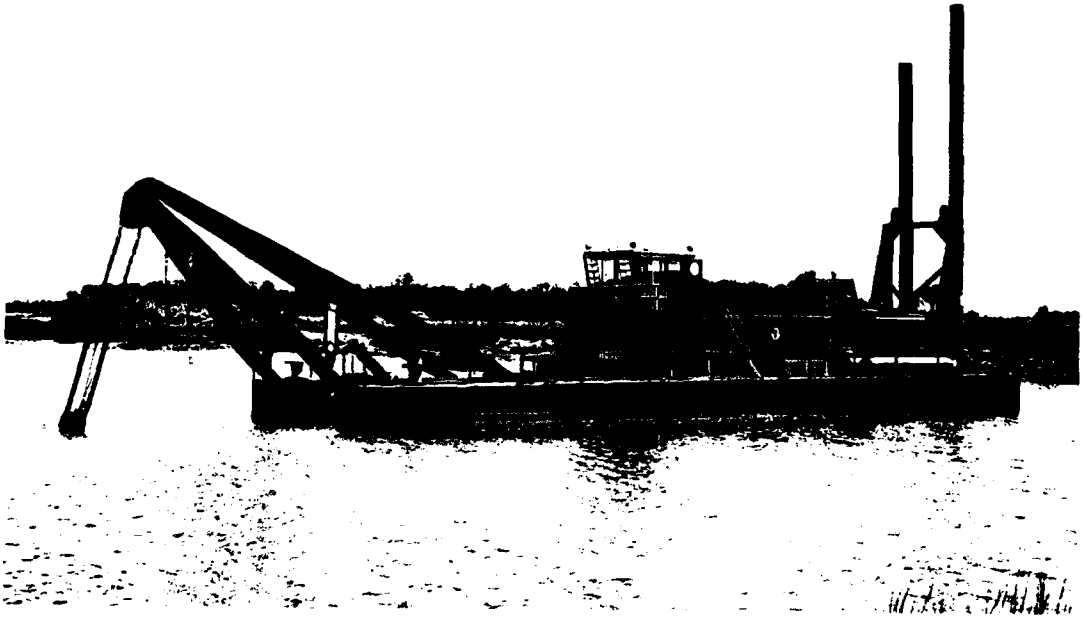
Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Can be assembled in three days.



DREDGE MODEL OR SERIES: PD-20D

MANUFACTURER: American Marine & Machinery Company, Inc. (AMMCO)

GENERAL:

Length	100 ft (30.5 m)
Width	32 ft (9.8 m)
Weight	616,595 lb (279,700 kg)
Draft	53 in. (135 cm)
Fuel Capacity	25,000 gal (94,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	1,700 hp (1,270 kw)
Capacity	Not available
Suction Diameter	24 in. (61 cm)
Discharge Diameter	20 in. (51 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	500 hp (373 kw)

WORKING CAPACITY:

Digging Depth	To 60 ft (18.3 m)
Production Rates	660-1,000 cu yd/hr (500-760 cu m/hr)
Pumping Distances	To 7,000 ft (2,130 m)

ANCHORING SYSTEM:

Type	Spuds and winches

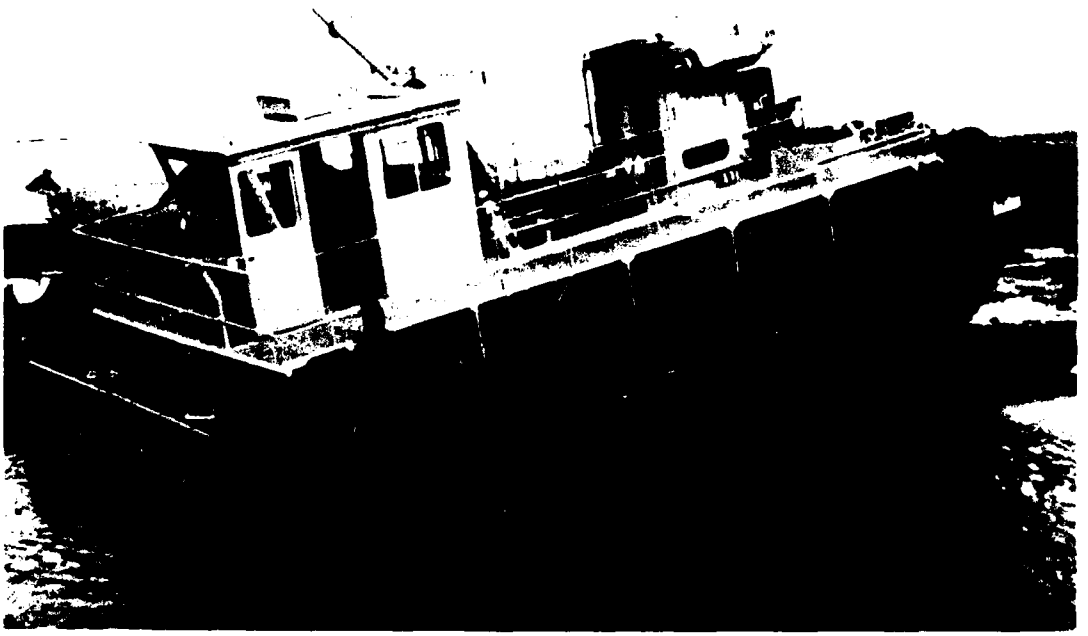
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Information not available.

REMARKS:

Center and side hulls each built in two sections.

Amphibious Dredge Model 12x10-400-HYD



DREDGE MODEL OR SERIES: Amphibious Dredge Model 12x10-400-HYD

MANUFACTURER: Quality Industries, Inc.

GENERAL:

Length	42 ft (12.8 m)
Width	15 ft 6 in. (4.7 m)
Weight	54,000 lb (24,500 kg)
Draft	72 in. (183 cm)
Fuel Capacity	600 gal (2,300 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	300 hp (224 kw)
Capacity	5,000 gpm at 39-ft head (315 ℓ/s at 12 m)
Suction Diameter	12 in. (31 cm)
Discharge Diameter	10 in. (25 cm)

CUTTER ASSEMBLY:

Type	16-ft-wide horizontal cutter
Horsepower to Cutter	45 hp (33.6 kw)

WORKING CAPACITY:

Digging Depth	6 ft with tracks walking on bottom (1.8 m)
Production Rates	To 1,000 cu yd/hr (764 cu m/hr)
Pumping Distances	From 3,000 gpm at 140-ft head (189 ℓ/s at 43 m)

ANCHORING SYSTEM:

Type	Auxiliary walking spuds

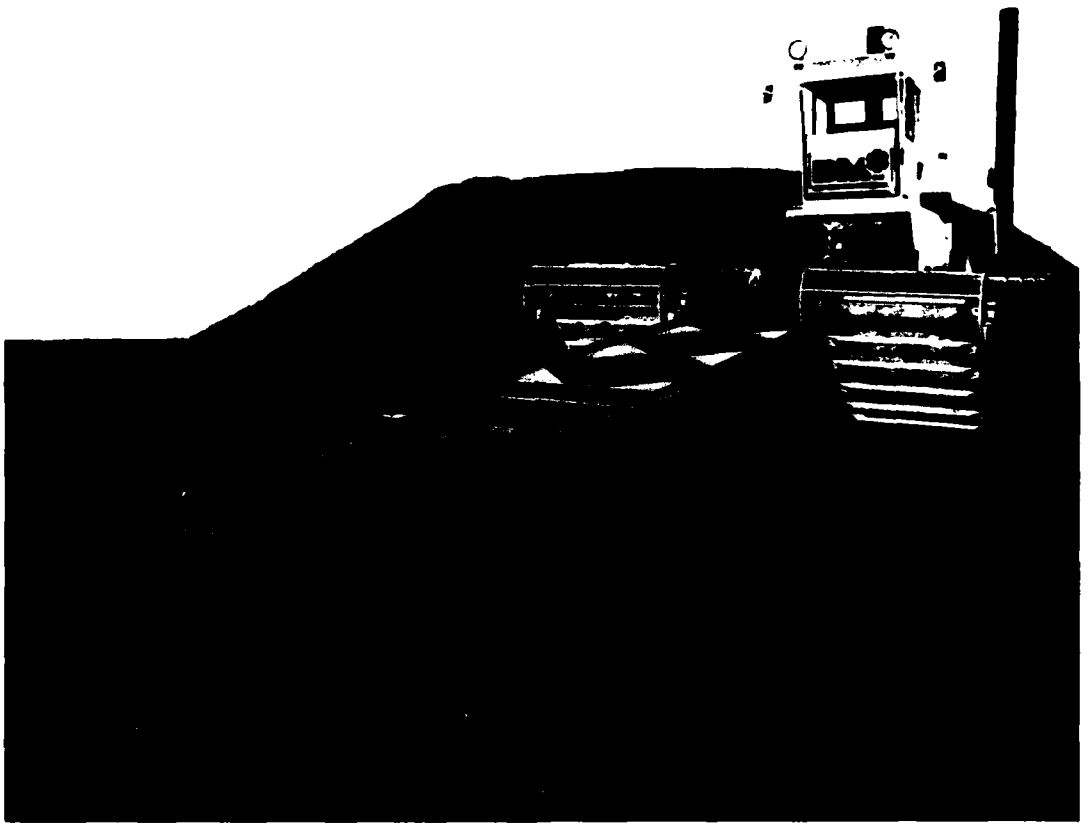
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Three trucks and one 25-ton (22,679 kg) crane needed.

REMARKS:

Dredge concept provides for vehicle to be propelled by tracks while dredging at rated operating depth. Hydraulic spud system provides propulsion in depths exceeding 6 ft (1.8 m). Crawler tracks enable dredge to enter and exit water under its own power.

Mudmaster



DREDGE MODEL OR SERIES: Mudmaster

MANUFACTURER: Dredge Masters International (DMI)

GENERAL:

Length	39-59 ft (11.9-18 m)
Width	8-12 ft (2.4-3.7 m)
Weight	15,500-38,000 lb (7,000-17,200 kg)
Draft	30 in. (76 cm)
Fuel Capacity	275-315 gal (1,040-1,200 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	48-275 hp (35.8-205 kw)
Capacity	Consult company
Suction Diameter	6-12 in. (15-31 cm)
Discharge Diameter	4-10 in. (10-25 cm)

CUTTER ASSEMBLY:

Type	See remarks
Horsepower to Cutter	5-25 hp (3.7-18.6 kw)

WORKING CAPACITY:

Digging Depth	10-18 ft (3.1-5.5 m)
Production Rates	20-400 cu yd/hr (15.3-306 cu m/hr)
Pumping Distances	100 to over 5,000 ft (30.5-1,530 m)

ANCHORING SYSTEM:

Type	See remarks

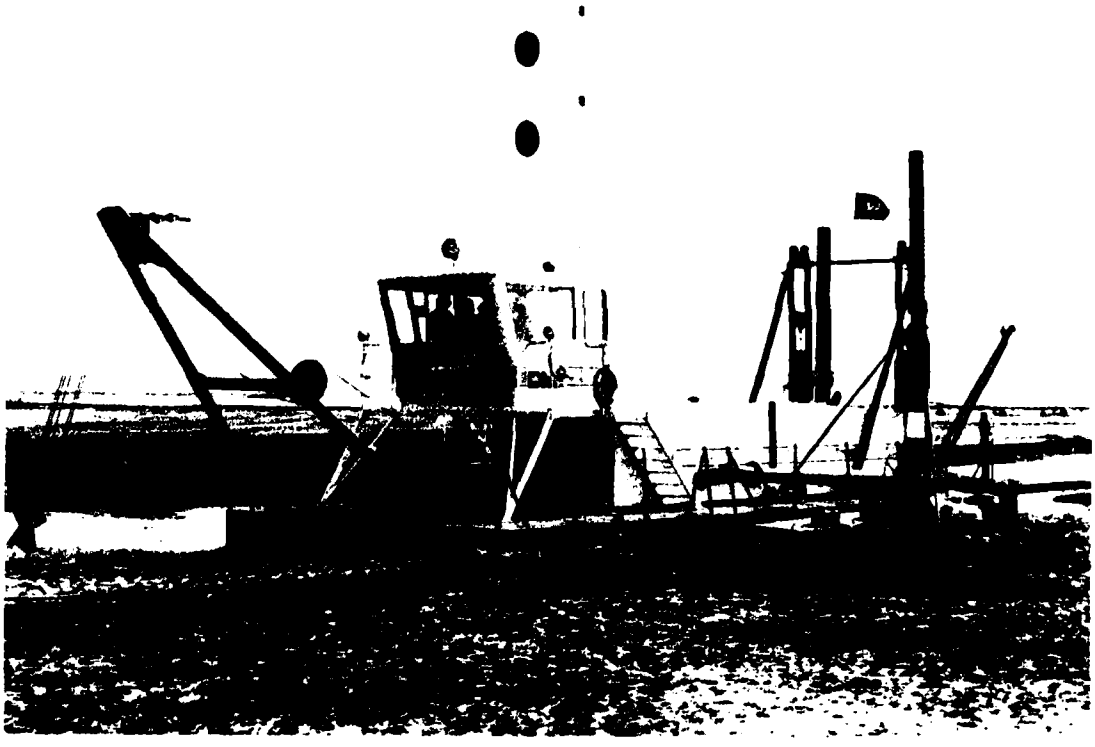
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Consult factory for specific model information.

REMARKS:

Optional flotation systems include rectangular pontoons, wedge pontoons, and an amphibious package consisting of crawler tracks. Cutter options include cutterhead, horizontal cutter, and open suction dustpan. Anchoring system can be spuds and winches, four-corner positioning, or single wire. Series incorporates a number of variations and can be altered to suit project requirements.

Economaster



DREDGE MODEL OR SERIES: Economaster

MANUFACTURER: Dredge Masters International (DMI)

GENERAL:

Length (Overall)	75-76 ft (22.9-23.2 m)
Width	18-20 ft (5.5-6.1 m)
Weight	141,000-215,000 lb (64,000-97,500 kg)
Draft	37-48 in. (94-122 cm)
Fuel Capacity	2,700-3,750 gal (10,200-14,200 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	365-725 hp (272-541 kw)
Capacity	1,200-9,500 gpm (76-600 ℓ/s)
Suction Diameter	10-18 in. (25-46 cm)
Discharge Diameter	8-16 in. (20-41 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	50-100 hp (37.3-74.6 kw)

WORKING CAPACITY:

Digging Depth	21-26 ft (6.4-7.9 m)
Production Rates	50-450 cu yd/hr (38-340 cu m/hr)
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Consult factory for specific model information.

REMARKS:

Modular construction. Series incorporates a number of variations and can be altered to suit project requirements.

Portamaster

DREDGE MODEL OR SERIES: Portamaster

MANUFACTURER: Dredge Masters International (DMI)

GENERAL:

Length (Overall)	85-92 ft (25.9-28 m)
Width	22 ft (6.7 m)
Weight	272,000-312,000 lb (123,400-141,500 kg)
Draft	46-48 in. (117-122 cm)
Fuel Capacity	4,500-5,400 gal (17,000-20,400 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	725-1,125 hp (541-839 kw)
Capacity	2,200-16,200 gpm (139-1,020 ℓ/s)
Suction Diameter	14-20 in. (36-51 cm)
Discharge Diameter	12-20 in. (31-51 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	160-225 hp (119-168 kw)

WORKING CAPACITY:

Digging Depth	28-34 ft (8.5-10.4 m)
Production Rates	220-750 cu yd/hr (168-570 cu m/hr)
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

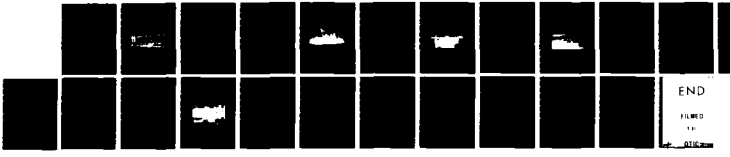
Consult factory for specific model information.

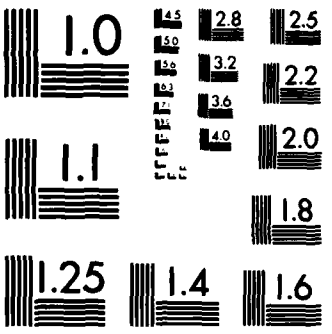
REMARKS:

Modular design. Series incorporates a number of variations and can be altered to suit project requirements.

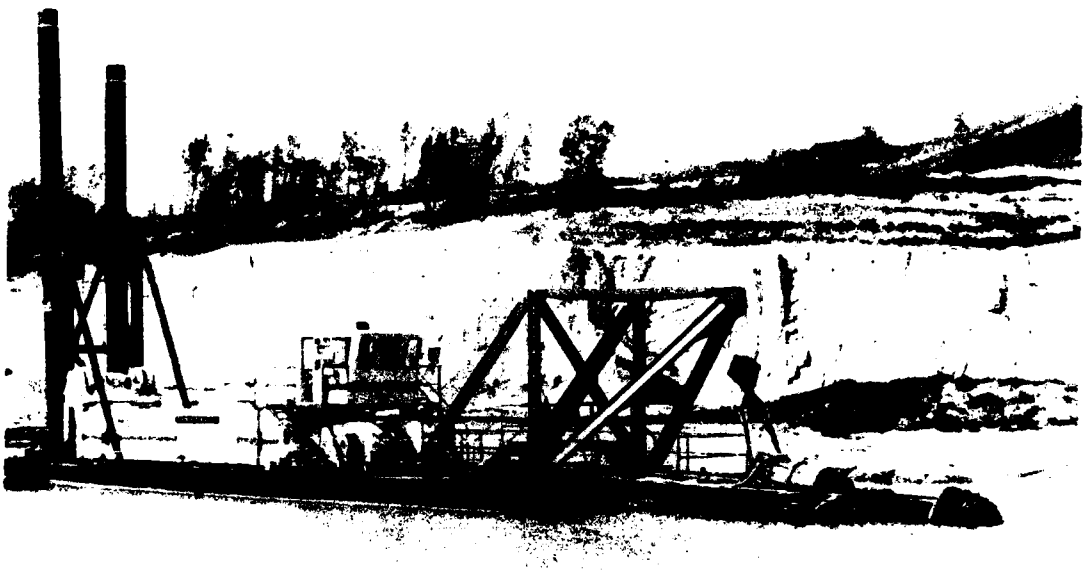
AD-A131 454 SURVEY OF PORTABLE HYDRAULIC DREDGES(U) ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS HYDRAULICS LAB G R CLARK MAR 83 WES/TR/HL-83-4 2/2

UNCLASSIFIED F/G 13/7 NL





Powermaster



DREDGE MODEL OR SERIES: Portamaster

MANUFACTURER: Dredge Masters International (DMI)

GENERAL:

Length (Overall)	85-92 ft (25.9-28 m)
Width	22 ft (6.7 m)
Weight	272,000-312,000 lb (123,400-141,500 kg)
Draft	46-48 in. (117-122 cm)
Fuel Capacity	4,500-5,400 gal (17,000-20,400 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	725-1,125 hp (541-839 kw)
Capacity	2,200-16,200 gpm (139-1,020 ℓ/s)
Suction Diameter	14-20 in. (36-51 cm)
Discharge Diameter	12-20 in. (31-51 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	160-225 hp (119-168 kw)

WORKING CAPACITY:

Digging Depth	28-34 ft (8.5-10.4 m)
Production Rates	220-750 cu yd/hr (168-570 cu m/hr)
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Consult factory for specific model information.

REMARKS:

Modular design. Series incorporates a number of variations and can be altered to suit project requirements.

DREDGE MODEL OR SERIES: Powermaster

MANUFACTURER: Dredge Masters International (DMI)

GENERAL:

Length (Overall)	100-115 ft (30.5-35.1 m)
Width	28-30 ft (8.5-9.1 m)
Weight	404,000-515,000 lb (183,300-233,600 kg)
Draft	46-50 in. (117-127 cm)
Fuel Capacity	11,000 gal (41,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	1,125-2,250 hp (839-1,680 kw)
Capacity	4,200-32,000 gpm (265-2,020 ℓ/s)
Suction Diameter	20-24 in. (51-61 cm)
Discharge Diameter	16-24 in. (41-61 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	225 hp (168 kw)

WORKING CAPACITY:

Digging Depth	35-52 ft (10.7-15.9 m)
Production Rates	200-1,425 cu yd/hr (153-1,090 cu m/hr)
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

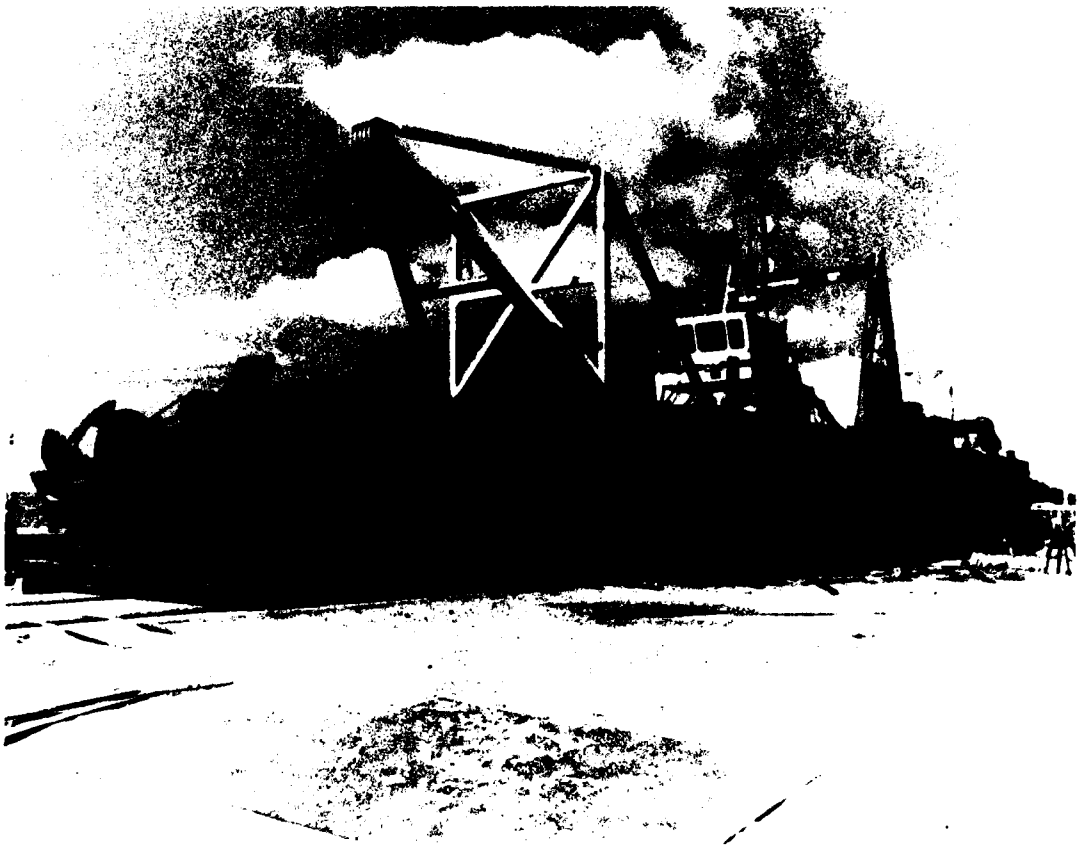
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Consult factory for specific model information.

REMARKS:

Series incorporates a number of variations and can be altered to suit project requirements.

Duramaster



DREDGE MODEL OR SERIES: Duramaster

MANUFACTURER: Dredge Masters International (DMI)

GENERAL:

Length (Overall)	148-158 ft (45.1-48.1 m)
Width	28-34 ft (8.5-10.4 m)
Weight	947,000-1,177,000 lb (430,000-534,000 kg)
Draft	60-75 in. (152-191 cm)
Fuel Capacity	19,200-30,000 gal (72,700-113,600 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	2,305-3,600 hp (1,720-2,680 kw)
Capacity	6,900-41,900 gpm (440-2,640 ℓ/s)
Suction Diameter	24, 28, 32 in. (61, 71, 81 cm)
Discharge Diameter	20, 24, 27 in. (51, 61, 69 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	450-900 hp (336-671 kw)

WORKING CAPACITY:

Digging Depth	49-61 ft (14.9-18.6 m)
Production Rates	300-1,850 cu yd/hr (230-1,400 cu m/hr)
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Consult factory for specific model information.

REMARKS:

Series incorporates a number of variations and can be altered to suit project requirements.

212-150 Diesel

DREDGE MODEL OR SERIES: 212-150

MANUFACTURER: Delta Dredge & Pump Corporation

GENERAL:

Length	40 ft (12.2 m)
Width	16 ft (4.9 m)
Weight	42,000 lb (19,000 kg)
Draft	32 in. (81 cm)
Fuel Capacity	600 gal (2,270 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	270 hp (201 kw)
Capacity	4,000 gpm at 150-ft head (252 ℓ/s at 46 m)
Suction Diameter	None (submerged pump)
Discharge Diameter	12 in. (25 cm)

CUTTER ASSEMBLY:

Type	Twin rotating vertical cutters
Horsepower to Cutter	80 hp (60 kw)

WORKING CAPACITY:

Digging Depth	16 ft (4.9 m)
Production Rates	To 300 cu yd/hr (229 cu m/hr)
Pumping Distances	To 4,000 ft (1,220 m)

ANCHORING SYSTEM:

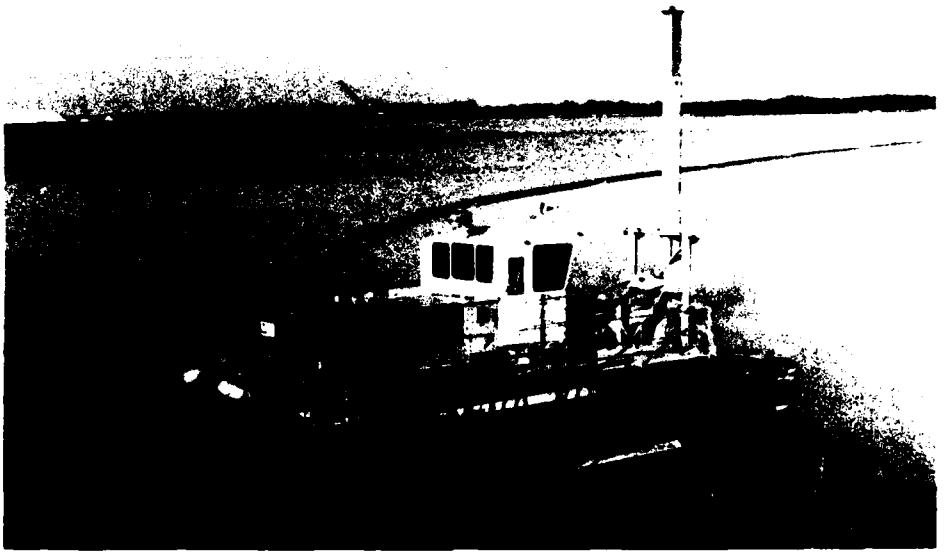
Type	Winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

Unit can be skid- or crane-loaded onto single truck.

REMARKS:

Unit can be folded to 9 ft (2.7 m) wide by 9.5 ft (2.9 m) high by 40 ft (12.1 m) long for travel and features variable speed, reversible cutters, and a submerged pump.



DREDGE MODEL OR SERIES: 212 EG-160SS

MANUFACTURER: Delta Dredge & Pump Corporation

GENERAL:

Length	42 ft (12.8 m)
Width	19 ft (5.8 m)
Weight	65,000 lb (29,500 kg)
Draft	40 in. (102 cm)
Fuel Capacity	900 gal or electric (3,410 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	400 hp (298 kw)
Capacity	5,000 gpm at 160-ft head (315 ℓ/s at 49 m)
Suction Diameter	None (submerged pump)
Discharge Diameter	12 in. (25 cm)

CUTTER ASSEMBLY:

Type	Twin rotating vertical cutters
Horsepower to Cutter	80 hp (60 kw)

WORKING CAPACITY:

Digging Depth	23 ft (7.0 m)
Production Rates	To 300 cu yd/hr (229 cu m/hr)
Pumping Distances	To 4,300 ft (1,310 m)

ANCHORING SYSTEM:

Type	Trolley line or winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

One three-axle "low boy" trailer, one flatbed truck, and one crane needed for transport.

REMARKS:

500-hp (373 kw) electric dredge is also available in diesel version and features variable speed, counterrotating, reversible cutters, and a submerged pump.

No Picture Available for 218 EG-300SS

DREDGE MODEL OR SERIES: 218 EG-300SS

MANUFACTURER: Delta Dredge & Pump Corporation

GENERAL:

Length	50 ft (15.2 m)
Width	25 ft (7.6 m)
Weight	110,000 lb (49,900 kg)
Draft	40 in. (102 cm)
Fuel Capacity	Electric

PUMP:

Type	Centrifugal
Main Pump Horsepower	1,000 hp (746 kw)
Capacity	12,000 gpm (757 ℓ/s)
Suction Diameter	None (submerged pump)
Discharge Diameter	18-24 in. (46-61 cm)

CUTTER ASSEMBLY:

Type	Twin rotating vertical cutters
Horsepower to Cutter	n/a

WORKING CAPACITY:

Digging Depth	30 ft (9.1 m)
Production Rates	To 900 cu yd/hr (688 cu m/hr)
Pumping Distances	To 7,000 ft (2,130 m)

ANCHORING SYSTEM:

Type	Trolley line or winches

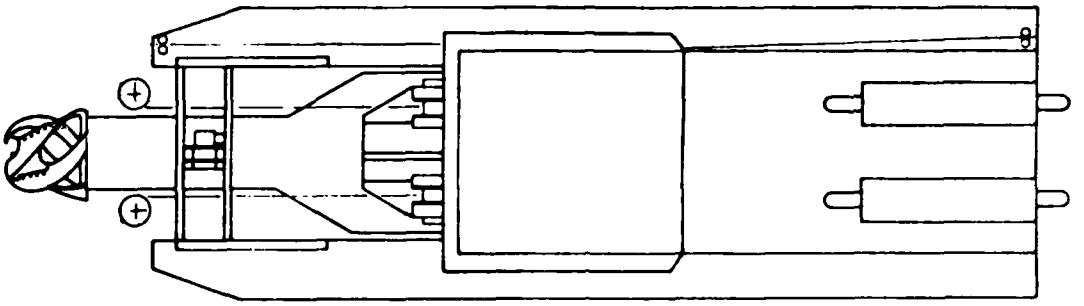
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

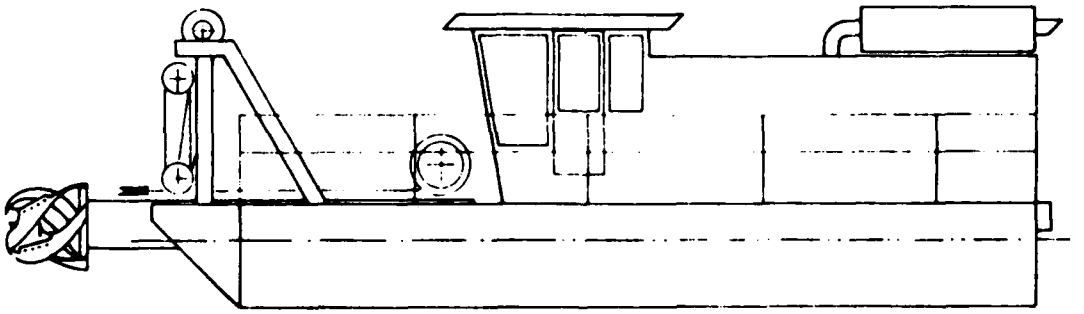
Three flatbed trucks and one crane.

REMARKS:

Features variable speed, counterrotating, reversible cutters, variable speed submerged pump, and variable speed main pump.

MD-410 Mini Dredge





DREDGE MODEL OR SERIES: MD 410

MANUFACTURER: Mini Dredge Ltd.

GENERAL:

Length	35.5-55.75 ft (10.8-17.0 m)
Width	10 ft (3.1 m)
Weight	28,200 to 38,400 lb (12,800-17,400 kg)
Draft	24 in. (61 cm)
Fuel Capacity	1,500 gal (5,680 ℓ)

PUMP:

Type	Jet pump
Main Pump Horsepower	150-300 hp (112-224 kw)
Capacity	1,122-2,245 gpm (71-142 ℓ/s)
Suction Diameter	--
Discharge Diameter	10-18 in. (25-46 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	40 hp (30 kw)

WORKING CAPACITY:

Digging Depth	3-21 ft* (0.9-6.4 m)
Production Rates	To 350 cu yd/hr (270 cu m/hr)
Pumping Distances	To 3,000 ft (915 m)

ANCHORING SYSTEM:

Type	Winches or spuds

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

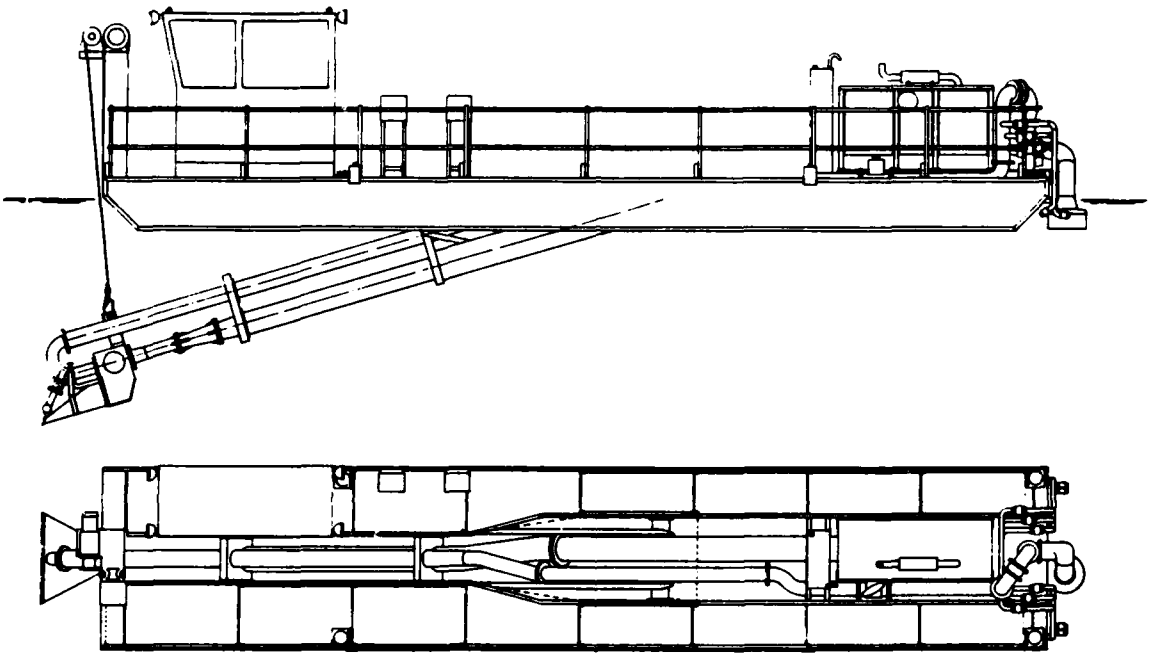
Trailer transportable in one piece, no heavy lifting facilities required for either assembly or launching. Spud option requires 1-1/2-ton (1,360 kg) crane to place spuds in well.

REMARKS:

Jet pump nozzle and mixing chamber are variable to adjust for different material and discharge conditions.

* 21- to 100-ft (6.4 to 30.4 m) digging depths available with deep dredging frame and pontoons.

Muck Duck



DREDGE MODEL OR SERIES: Muck Duck

MANUFACTURER: General Conveyors Limited (GENFLO)

CONTACT: Mini Dredge Ltd.

GENERAL:

Length	47 ft (14.3 m)
Width	8 ft (2.4 m)
Weight	13,000-18,000 lb (5,900-8,200 kg)
Draft	20-28 in. (51-71 cm)
Fuel Capacity	Day tank standard

PUMP:

Type	Jet pump
Main Engine Horsepower	130-350 hp (97-261 kw)
Capacity	Consult company
Suction Diameter	--
Discharge Diameter	8-18 in. (20-45.7 cm)

CUTTER ASSEMBLY:

Type	Water jet or cutterhead
Horsepower to Cutter	10-40% of engine hp

WORKING CAPACITY:

Digging Depth	15 ft (4.6 m) typical
Production Rates	100-400 ton/hr --
Pumping Distances	500-3,300 ft (150-1,000 m)

ANCHORING SYSTEM:

Type	Capstan and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

No special equipment needed. Can be winched on and off flatbed trailer and into water.

REMARKS:

Digging depth extendable. Wide range of intake options and means of cutting. Jet pump nozzle and mixer components interchangeable to suit wide range of material and discharge conditions.

Billy Goat I

DREDGE MODEL OR SERIES: Billy Goat I

MANUFACTURER: Kenner Marine and Machinery, Inc.

GENERAL:

Length	35 ft (10.7 m)
Width	12 ft (3.7 m)
Weight	35,000 lb (15,900 kg)
Draft	24 in. (61 cm)
Fuel Capacity	500 gal (1,900 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	170 hp (127 kw)
Capacity	Consult company
Suction Diameter	8 in. (20 cm)
Discharge Diameter	8 in. (20 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	14.5 hp (10.8 kw)

WORKING CAPACITY:

Digging Depth	23 ft (7.0 m)
Production Rates	Consult company
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

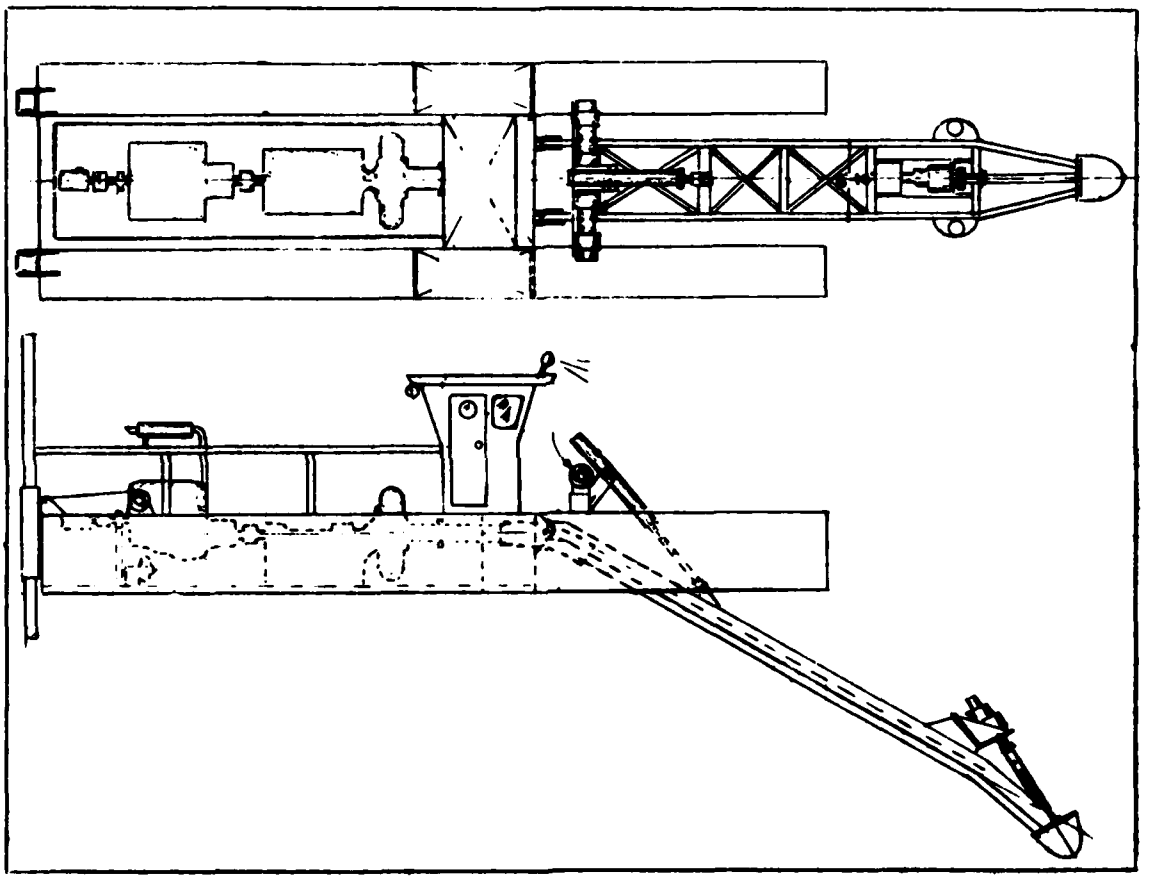
TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

One 18-wheel "low boy" trailer needed.

REMARKS:

Series is variable and will be altered to meet specific project demands.

Billy Goat II



DREDGE MODEL OR SERIES: Billy Goat II

MANUFACTURER: Kenner Marine and Machinery, Inc.

GENERAL:

Length	40 ft (12.2 m)
Width	12 ft (3.7 m)
Weight	50,000 lb (22,700 kg)
Draft	24 in. (61 cm)
Fuel Capacity	1,240 gal (4,700 ℓ)

PUMP:

Type	Centrifugal
Main Pump Horsepower	265 hp (198 kw)
Capacity	Consult company
Suction Diameter	12 in. (31 cm)
Discharge Diameter	10 in. (25 cm)

CUTTER ASSEMBLY:

Type	Cutterhead
Horsepower to Cutter	18.5 hp (13.8 kw)

WORKING CAPACITY:

Digging Depth	26 ft (7.9 m)
Production Rates	Consult company
Pumping Distances	Consult company

ANCHORING SYSTEM:

Type	Spuds and winches

TRANSPORT/ASSEMBLY EQUIPMENT NEEDED:

One 18-wheel "low boy" trailer needed.

REMARKS:

Series is variable and will be altered to meet specific project demands.

APPENDIX B: ADDRESSES OF COMPANIES CONTACTED

Ajax Company
1284 Miller Road
Avon, OH 44011

AMMCO
P. O. Box 100923
Nashville, TN 37210

Assemblers, Inc.
1115 North Elm Street
West Liberty, IA 52776

Clyde Iron/Wiley Mfg.
2300 West Loop South
Suite 102
Houston, TX 77027

Delta Dredge and Pump Corp.
11743 Lackland Road
St. Louis, MO 63141

Dixie Dredge Corporation
8222 Polk Street
St. Louis, MO 63111

Dravo Corporation
Engineering Works Division
1800 Neville Island
Pittsburgh, PA 15225

Dredge Economy, Inc.
12700 Biscayne Blvd.
North Miami, FL 33181

Dredgemasters International, Inc.
Number One Dredge Park
Hendersonville, TN 37075

Eagle Iron Works
129 Holcomb
Des Moines, IA 50304

Ellicott Machine Corp.
1600 Block Bush St.
Baltimore, MD 21230

Guntert and Zimmerman
Construction Division, Inc.
P. O. Box 1688
Stockton, CA 95201

Hardcastle Industries Inc.
229 N. Meridian Ave.
Tampa, FL 33602

Hartman-Fabco, Inc.
1415 Lake Lansing Road
Lansing, MI 48912

Intercontinental Engineering-
Manufacturing Corp.
P. O. Box 9055
Kansas City, MO 64168

Jantzen Engineering Co., Inc.
6655 Amberton Drive
Baltimore, MD 21227

Kenner Marine and Machinery, Inc.
P. O. Box 1200
Laplace, LA 70068

Levingston Shipbuilding Co.
2nd and Front Streets
Orange, TX 77630

Maxon Marine Industries Inc.
P. O. Box 349
Tell City, IN 47586

Meckum Engineering Division
The Peltier Glass Company
2027 Champlain St.
Ottawa, IL 61350

Minco Inc.
P. O. Box 553
Westwego, LA 70094

Mini Dredge Co. Ltd.
1422 Crown Street
North Vancouver BC V7J1G5
Canada

MUD CAT Division, National
Car Rental
P. O. Box 16247
St. Louis Park, MN 55416

Paulson Engineering, Inc.
188 Eighth Avenue
Hawthorne, NJ 07507

Quality Industries, Inc.
P. O. Box 406
Thibodaux, LA 70301

Sefab Inc.
78 S. Hudson Street
Seattle, WA 98134

Todd Shipyards Inc.
P. O. Box 9666
Houston, TX 77015

Twin City Shipyard Inc.
P. O. Box 43032
St. Paul, MN 55164

VMI Inc.
4310 N. Martin
Bethany, OK 73008

W&S Development Inc.
4957 Main St.
Greenbush, MI 48738

Table B1

Correspondence Summary

Company	Requested Portable Dredge Info (WES)	Sent Reply (Company)	Requested Additional Input to Report (WES)	Sent Additional Info (Company)
Ajax	X			
AMMCO	X	X	X	X
Assemblers	X			
Clyde Iron	X	X	1	
Delta Dredge	X	X	X	X
Dixie Dredge	X			
Dravo	X	X	1	
Dredge Economy	X	X	1	
Dredgemasters Int.	X	X	X	X
Eagle Iron Works	X	X	X	X
Ellicott	X	X	X	X
Guntert & Zimmerman	X	X	1	
Hardcastle	X			
Hartman-Fabro	X			
Intercontinental	X			
Jantzen	X	X	2	
Kenner Marine	X	X	X	X
Levingston	X	X	2	
Maxon Marine	X			
Meckum Engrg.	X			
Minco	X			
Mini Dredge	X	X	X	X
MUD CAT	X	X	X	X
Paulson Engrg.	X	X	2	
Quality Ind.	X	X	X	X
Sefab	X			
Todd	X			
Twin City	X			
VMI	X	X	X	X
W&S Development	X	X	X	X

Key: X = Action taken

1 = no additional input sought; company does not build portable dredges.

2 = no additional input sought; company builds custom dredges only.

In accordance with letter from DAEN-RDC, DAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

Clark, Gene R.
Survey of portable hydraulic dredges / by Gene R. Clark (Hydraulics Laboratory, U.S. Army Engineer Waterways Experiment Station). -- Vicksburg, Miss. : The Station ; Springfield, Va. : available from NTIS, 1983.
1 v. (loose-leaf) : ill. ; 27 cm. -- (Technical report ; HL-83-4)
Cover title.
"March 1983."
Final report.
"Prepared for Office, Chief of Engineers, U.S. Army."

1. Dredges. 2. Dredging. I. United States. Army. Corps of Engineers. Office of the Chief of Engineers. II. U.S. Army Engineer Waterways Experiment Station. Hydraulics Laboratory. III. Title IV. Series: Technical report (U.S. Army Engineer Waterways Experiment Station) ; HL-83-4.
TA7.W34 no.HL-83-4

END

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